

Authentic

SCIENCE FICTION MONTHLY 1'6

Nº51



This month's featured novel:

THE ENVIED by Jonathan Burke

Other Stories by: S. J. Bounds, Clifford C. Reed, Peter J. Hazell

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ONE SHILLING and SIXPENCE

Authentic

SCIENCE FICTION MONTHLY

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H.J. CAMPBELL

Writes...

I shall be terribly disappointed if you don't all write in and tell me that this month's lead story is one of the finest we have had. I have published Jonathan Burke several times before, as you know, but I can't help feeling that he has topped his previous high standard with *The Envied*. Do tell me if you agree.

Sydney J. Bounds has been absent from these pages for quite a while; now he is back with a tragi-comical piece that I hope will amuse you. I think we'll be having him again shortly. Anthony Reed is new to us, but I believe that when you have read his poignant story in this issue you will want more. Let me know. Peter J. Hazell is another author we have not published before. Tell me what you think

of his restrained style as seen in *The Blackdown Miracle*. I rather like it.

That's your fiction fare this month. Nonfiction includes Professor Delwood's answer to his own question of how the universe can be explained on a non-expanding basis. George Duncan is back with an interesting piece on the new drugs that make you see things. There's a further instalment in the series on scientific method. W. W. Byford tells us a few things about gravity that we might not have known before. And we brim the cup with the usual fanzine reviews, book reviews and projectiles.

Two features have been dropped. One is the fan group thing. I've dropped it because the fan groups don't seem to have enough initiative to send

me the data. Either that or they don't want the publicity. Whichever it is, there is no room for it in a go-ahead magazine like this.

The other feature I've stopped is the one that dealt with great men of science. I think I've covered all the truly great and I don't want to clutter our pages with talk about the merely competent. Instead, starting next month I'll be writing you a regular feature on milestones in science—all about the little things that have changed the whole course of subsequent progress. Would you like that? Tell me if you have any better ideas.

There's only one other thing I would mention before going on to describe our cover, and that is the *Authentic Book of Space*. There's a leaflet about it enclosed with this issue. Now I'm just as good at blowing my own trumpet as the next man, and although I edited the *A.B.S.* I have no hesitation in telling you that if you don't buy it you'll be sorry. It is really good. Better than any other publication of that type. And bigger. And cheaper. You'll love it!

See you next month.

H.J.C.

THIS MONTH'S COVER

shows us the fabulous planet Mars. No princesses. No crystal castles. No picturesque ruins of a bygone civilisation. This is Mars as it really is.

The air is too thin to breathe. It's cold, too. The ground is just a rusty kind of dust, with patches of some lowly sort of plant that is no use to God nor man and would probably be rejected by the devil. The dust flies up as you walk along and if you're not careful you trip and bury your face in it because of the low gravity. You slouch about like a jungle beast.

You still don't know what the canals are. You only know that they get in the way and get covered with this green joke of nature so that you fall into them and come out wet and sticky and slimy and fit to burst with temper. They get on your nerves. Mars gets on your nerves.

All that ice up in the polar regions. The whole lot melts in summer and comes crashing down onto the plain as a raging torrent of slush until it seeps down into the sterile ground and disappears. That torrent is the only thing that moves on Mars. That and the dust and the stupid little clouds that are so small you want to cry.

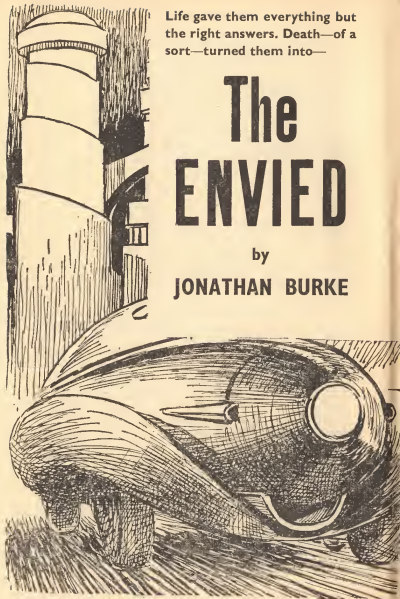
Sometimes you do cry. For home. For Earth. For trees and fields and somebody you can love or fight with or just talk to. Sometimes, on Mars, you want to scream. But you never do that. Because you know you wouldn't be able to stop.

Life gave them everything but
the right answers. Death—of a
sort—turned them into—

The ENVIED

by

JONATHAN BURKE





THE small group of grey figures had marched solemnly across the paveway in front of them, and had been snatched away in a fast helicar. Now they were left with that familiar feeling of resentment. The arrogance of those grey creatures—their remoteness—their indescribable aura of autocratic indifference . . .

Warren said: "If we could only find some way of getting at them! If only there was just one of them on our side."

"But there isn't," said Judith.

"Or if there is, the rest of them take darned good care that there shan't be any contact."

"I don't believe there's even one of them who'd help us," said Judith gravely. "Once you become a Grey, you lose all interest in your old friends."

Her voice was always grave in just that thoughtful, gently melancholy way. Warren glanced down at her as she turned her smooth, solemn

little face towards him; and, not for the first time, he thanked his lucky stars that he'd got a girl with some intelligence instead of one of those bright giggling creatures who was always in pursuit of a good time. A good time . . . when the human race was being gradually throttled by the domineering Greys! It didn't bear thinking of.

The two of them stepped off the moving paveway at a junction, and waited for the intersection belt to start up again. While they waited, two Greys came out of the massive building on the other side of the carriageway and stood for a moment at the top of the steps.

Warren put his hand lightly on Judith's arm and directed her attention towards those impassive figures.

"That's one of their exclusive clubs," he said in a low voice. "What do they get up to in there? Why are they so afraid of letting the rest of us find out?"

These were not new ques-

tions. They were old ones: but they never grew stale. The sight of the blank, withdrawn features of a Grey could always provoke that angry enquiry once more.

Now, as so many times before, two ordinary human beings stared at the non-committal features of their rulers, and wondered—wondered irritably, bitterly, suspiciously.

Judith said: "If you became a Grey—if you died to-day and they took you over—would you forget me?"

"You know I wouldn't."

"But other people have forgotten. They've been taken over, and never returned even to pass the time of day with their families or friends."

The paveway clicked as relays tripped, and the cross-town belt began to move swiftly. Warren steered Judith into the middle of the crowd of people coming along.

"I wonder if they have all forgotten, really?" he said as they went on. "I mean, how

do we know there haven't been lots of men and women who've objected to being made into soulless machines? Maybe the awkward ones are sent off to the planets, where there aren't any normal human beings to be friends with, anyway. We don't know."

"So many things we don't know," sighed Judith, "and no way of finding out."

They fell into a despondent silence. Warren turned over in his mind a multitude of plans for breaking the spell of the Greys. They had been flesh and blood themselves once, hadn't they? They had no right to become so lofty and to reserve so many privileges to themselves simply because they had died. If only there were some way of being turned into a Grey without losing one's sense of loyalty to the ordinary, decent people of the world.

He said abruptly: "I sometimes think I ought to—well, throw myself under a monocar, so that I could get

into the middle of the Greys."

Judith went pale. "Don't talk like that!"

"But what other way is there of getting at them?"

"If you did that," she said, "you'd become just like the rest of them."

"I wouldn't."

"How can you be sure? If they offered you privileges and . . . and . . . well, whatever it is they've got that makes them so high-and-mighty . . ."

"There must be some way of resisting that sort of thing. If you really set your mind to it."

She shook her head. She was just as idealistic as he was, but she was practical with it: she had seen her father killed in an accident, seen him taken away, and been to the Conversion Ward two days later. He had repudiated her. Not contemptuously or unpleasantly: he had just made it clear that he was somehow different, and that there was no contact between them any more. For

a while she had seemed to detect some struggle going on in him. For a while she had continued to see him, but he had gone further and further away from her, his whole spirit and personality receding behind that grey robot mask.

Then there had been her mother. And one or two friends had gone from her. She had no illusions now. When you became a Grey, you cut yourself off from what you had once been.

The paveway slowed, and they stepped off on to the fixed lane. Saturn Square lay spread out before them, with its great blocks of administrative offices and the mighty edifice of the World Theatre. The centre of the universe, they called this. They said that if you stood here long enough, everybody in the universe would sooner or later walk or ride past you. But that was one of those sayings, and nothing more. Even if it were true, would you be able to tell the difference be-

tween one being and another? All the creatures that came back from Mars and Venus, or the bleak moons of the farther worlds, were Greys: and one Grey looked just like another. There were no personal relationships. There was nothing that was warm and human—or, if there was, it wasn't shared with the lower classes, the poor down-trodden unfortunates who were still alive in their original flesh and blood form.

"That building there makes me dizzy," said Judith, craning her neck and staring up. "It makes me want to fall backwards——"

"Be careful! Judith!"

Warren gave a sudden shout and tried to grab her. But she had stepped a pace back, staggering, and was out over the edge of the paveway as a fast monacar sped round the edge of the square.

It was on her in a second, and over her. There was the puff of its brakes, and a

babble of agitated conversation. A crowd gathered.

Warren knelt beside her, saying: "No, Judith, no," and touching her face. Blood seeped out from under her summer dress.

Everyone else was jostling and talking. But Judith lay still, her face blank, strangely peaceful . . . and quite, quite empty of all that had been there only a few moments ago.

The hospital car dropped from the sky, twisting down between the great towers of the square like a falling leaf.

Two impassive Greys got out and lifted Judith.

Warren said: "I want to come with you."

One of them turned its neatly etched, expressionless face towards him. The rectangular mouth moved. The steady voice, with hardly any inflection, said: "It is not advisable."

"I tell you I want to come. You must try to save her——"

"Save her?" said the

metallic echo. "Perhaps we do not mean the same thing by the words. But you need not worry. She will be dealt with very well."

"Isn't there any chance?"

"Chance?" The echo sounded almost mocking. "She has every chance. Her brain is probably undamaged. We shall take her over."

"But . . ." It was no use. What could he possibly say?

The crowd murmured. Their buzz of restrained sound was like a resonance set off by his own despondency.

Now Judith was stowed away inside the hospital car. She was gone. Warren leaned forward as though to rush the car, to put up a fight and take her back.

The Grey who had spoken to him before said: "You were a friend of hers?"

"Yes. She and I . . . I mean . . ."

"Never mind. It is of no consequence. All we require is her name and address for record purposes. We will

check on all other necessary details."

Warren made an abrupt decision. He said: "I'll tell you the name and address when we get to the hospital."

"It is better if you do not come."

"If I ask to come, you can't stop me, can you?"

There was no anger, no emotion whatever, in the measured reply. "We could stop you if we wished. But it is not normal. If you insist, we will take you. But for your own sake it is better to go away and forget."

"I'm coming," said Warren.

"Very well. In front, beside the driver, please."

Warren felt cold as he got in beside the motionless figure of the driver. There was nothing real and human about these creatures. Perhaps he was a fool to put himself in their power.

Then he smiled wryly. After all, wasn't the human race entirely in their power: wasn't this whole system something that human beings

had themselves created and brought upon themselves?

The car rose with breath-taking swiftness, and the towers and spires of the city reeled away beneath.

Warren had acted purely on impulse, but now a thousand confused plans began to froth wildly inside his head. The Judith he had known was dead; but there would soon be another Judith, and might he not be able to get in touch with her? Perhaps if he insisted on remaining with her, or at any rate visiting her frequently in those early stages, he would be able to prevent her from drifting away as so many human beings drifted when they had been transmuted. Whatever it was that the Greys did to cancel out old loyalties, he must be there to combat it. His mind had always been in tune with Judith's. Perhaps there would still be a link—enough to give him a hold, however precarious, on her.

The driver began to talk to him unexpectedly. His sen-

tences were brief and impersonal, as though he were reciting a carefully-memorised lesson.

"You don't want to pursue this too far. Be wise. Your friend will forget when she begins her new life. You will forget, unless you are foolish enough to make yourself go on remembering."

"I don't see," said Warren challengingly, "why people who have known one another for a long time shouldn't keep in touch."

"That is because you do not understand."

"Does anybody? Any normal person, that is? If you don't make it your business to explain to us——"

"Many things have been explained," came the bland reply.

"Oh, yes, lots of things. Official handouts: we've had plenty of those. No ordinary human being can fly to the planets because his body won't stand up to the strain. His metabolism would let him down on other worlds. And

that's why the Greys do all the hard work on their own. The Greys have a more detached viewpoint than the rest of us, so they've taken law-making and government into their own hands."

"We are aware of these facts," said the voice, with no trace of irony. "They are facts. You should accept them, because they are true."

Warren snorted, then remained silent as the car fell swiftly to rest before the roof entrance of the hospital.

Efficient, soundless Greys had taken Judith inside in a matter of seconds. He followed. There was a lift, a corridor along which he moved in company with three Greys who did not speak to him, and then a room in which he waited for a long time, watching unseeingly the news flashes on the wall visor.

At last the door slid open. A tall Grey with long, bare, incredibly - flexible fingers came in.

Warren got up.

The Grey said: "Your friend is well."

For a moment a wild hope surged up in Warren's mind. "She's well? You mean she's going to be all right? I mean——"

"I mean that the operation has been successful. The transfer has been accomplished."

Warren slumped back into his chair. "I see," he said bleakly. "She's . . . one of you now."

"Yes. She is one of us now."

THE GIFT OF WHAT amounted almost to immortality seemed at first one of the greatest benefits that had ever been bestowed on mankind. There had, of course, been no promise by scientists of immortality. A thousand years in most cases, with perhaps some extensions to two thousand years: that was the extent of their original estimate. But a thousand years was immortality to a being who had regarded a

hundred as the ultimate probable limit. It did not matter that the ordinary body had to be discarded : the wretched inadequate body with its aches and pains and imperfections.

The first robot carriers had been clumsy, but the brains which had been mounted in them soon took possession and adapted the robot facilities. Within a few years a greater flexibility had been achieved. A great scientist died. His brain was carefully removed, revived by the action of focussed cosmic rays in conjunction with the original Murchison apparatus, and inserted in the open head of the robot that had been designed for its reception. In a matter of months the scientist was at work again, with new powers. The mechanical body never grew tired; the fingers were more flexible and less prone to damage than those fingers which had so recently been cremated; the mind was sharper and more deliberate. The scientist's mind grappled

with the problems of its new body, made suggestions for modifications, and offered more and more scope to those people who came after—those people who died in their turn and, in their turn, came to inhabit the continually improving cases which were being manufactured for them.

With the prospect of so many years ahead, doctors and philosophers and scientists felt that they could expand. Time was unlimited. Their own thought processes were somehow quickened now that they were freed from the encumbrance of bone, flesh and blood, and research developed rapidly. Not only were the robot carriers perfected, but cures for human ailments were devised by the newly-liberated brains. The span of human life was extended; and when at last the end came, the brain was removed and, after two brief hours in the Murchison regeneration apparatus, settled into its new home. The life of the mind went on.

At first people were rather shy of admitting to the existence of the robots. Originally they were dubbed "the after-men," but this clumsy phrase could not stick for long; in due course the grey plastic covering of the artificial bodies resulted in their being called Greys. There was at that time no emotional undertone to the word. It was only as generations went by that the Greys became associated with tyranny and greed and exclusiveness.

Only the Greys could travel to the planets. The unleashed, unshielded power of cosmic rays out in space made interplanetary travel impossible for normal human beings. The living conditions on the other planets were, in any case, quite unbearable. What a blessing, it was said at first, was the introduction of the new race.

But resentment grew. The Greys were too clever. Not only did they travel through space, bringing back valuable minerals on whose disposal

they made their own decisions: they began to displace ordinary human beings on the councils of the world, claiming that this was for the benefit of everyone. They were more intelligent and more dispassionate than their flesh and blood predecessors. But, they gently argued, they understood human problems: had they not, themselves, once been ordinary creatures? The minds that now made decrees, that carried on abstruse researches and dealt with the new problems of the planets, were human minds that simply went on living and growing in wisdom.

"The development of the After-men," said one of the early Greys in a speech made to the Council of the World Federation, "is the development of the whole human race. What we do is for the mutual benefit of the primitives and for ourselves: indeed, it could be said that the primitives benefit more than we do, since our pleasure is mainly in study and abstract

thought, yet we work gladly for the bodily comfort of those whose minds will one day join our community."

It sounded very fine. It was the standard argument, the official viewpoint; but there were some who distrusted the use of certain words. There seemed to be a slur in that description—"primitives." The Greys were setting themselves up as aristocrats.

In the middle of the twenty-second century there was a revolution in Central Europe. The group that had once, as a nation, been known as Czechoslovakia, declared its opposition to the growing power of the Greys. It objected to certain decrees regarding the readjustment of Federation control boundaries and limitations that had been placed on ordinary human research into infratomics.

"*The Greys,*" ran the proclamation, "*wish to hold all power in their inhuman hands. The peoples of the*

human race must unite and assert their independence."

There was certainly a hubbub in scientific circles. And there was a great deal of angry speculation when two leading human scientists died in suspicious circumstances and were taken into the After-men fold. From there they declared that they had been mistaken in advocating opposition to the Greys. The Greys were enlightened rulers who thought only in terms of the welfare of the race from which, after all, they sprang.

Nevertheless there was an armed insurrection, culminating in an attempt to take over the big research laboratories in Prague. The Greys defeated this easily enough, with very little bloodshed. They ordered, however, the judicial execution of the four ringleaders . . . and within a matter of days the converted minds of the ringleaders were uttering, through robot mouths, the recantation of their earlier beliefs.

The situation was a disturbed one, but there was no sign of an open conflict. The arguments of the Greys were very convincing. Even if you had doubts, you had to admit that on the face of things they were doing a good job.

Human life had been prolonged and made easier. The worst diseases had been conquered. Imports from the exploited planets made existence easier in many ways: food supplies and innumerable constructional materials came to swell the riches of Earth. Work was not onerous. There was more leisure than there had ever been. Leisure and independence.

Independence. In some meanings of the word, that was.

There was no ban on the expression of opinion, and the only restrictions the Greys imposed were on matters that did not greatly concern the general public: infra-atomics and the management of interplanetary freight must not be left in the hands of ordinary

people. There was a sound explanation; for every law and regulation there was always a neat, reasonably coherent explanation. If you were satisfied with a fairly luxurious, pleasurable existence, you had no real need to ask awkward questions. Let the Greys look after administration if they wanted to. There was sport, there were the telestadia, the new dances, the sensual new music, and all the joys of an efficiently-organised, enlightened civilisation.

Provided you didn't ask awkward questions.

Provided you didn't want to know how and why people's minds changed when they had been removed from the mortal body and settled into the robot carriers.

WARREN LOOKED AT the mathematical regularity of the Grey doctor's features and said:

"What happens to Judith now? What's it like for her?"

"It would be difficult to make you understand."

"You could try."

"We have tried many times before, without any great success. It is better to accept that a change has taken place. In time you yourself will qualify for admission to a carrier, and then you will know all that you wish to know."

"Why shouldn't I know now?" Warren persisted, with a feeling that if he did not keep talking now something essential would slip through his fingers. "Judith means a lot to me. If I can see her——"

"Not yet."

"But you're not going to forbid me to see her? If I come in tomorrow, I can talk to her?"

"She will not be interested," said the Grey coldly.

"That remains to be seen. What do you do to people? Why do you try to drag them away from their friends—from people who love them?"

"You loved this woman?"

Unexpectedly, Warren

found himself hesitating. Of course he loved Judith. Not in any silly, sentimental way: he and she had shared their views for years, and been very close to one another; they had planned to oppose the Greys one day, and go down to history as benefactors and liberators of the human race. Judith had greedily drunk in everything he had said to her. Of course he had loved her. Their minds had been in tune. There was no reason why they should not still be in tune.

He said: "Yes. I loved her."

"You will find someone else," said the Grey.

Warren was furious. He could have struck the creature. But what was the use of striking a creature of metal and plastic?

"I don't want anyone else," he said. "I want to see Judith. As soon as I can."

"Very well. You may come tomorrow afternoon at sixteen hours. But do not expect too much."

Warren did not reply to this. He went past the Grey with only the curtest of farewells, and was soon outside in the fresh air.

The outside world seemed to come up and hit him. Only now, away from that building, did he realise that Judith was actually dead. Dead. It was a word you didn't use often nowadays : you said so-and-so has been transferred, or taken over. But when you felt bitterly about the Greys, regarding them as enemies, the older word came back into use.

Judith was dead.

But he would talk to her again tomorrow.

The hours seemed endless. He lay awake for most of the night, listening to the subdued noises of the purring, smoothly-running city. It was almost as though he could hear the gears engaging, the switches clicking. Everything was so well-organised. Life was neat, human beings were comfortably provided

for. And at the top, running the whole thing for their own ends, were these inscrutable Greys, who ceased to be human once they had gone through the process of transference.

Their own ends . . . whatever those might be.

It was a question that Judith must answer. Lying awake, Warren tried to reduce his plans to some sort of order. He must not fumble or hesitate or make a false step right at the beginning.

The following afternoon he made his way to the hospital. It looked uninviting. It did not welcome healthy human beings, particularly when they came with challenges on their lips.

He was silently ushered along a corridor, into a lift again, and then through a doorway into a quiet ward. There was, oddly, none of the antiseptic smell he had expected—the smell one usually associated with hospital wards. Here there was only a faint dry breath of some-

thing metallic. Like a machine-shop, he thought with a tingle of horror.

The beds were not really beds. They were inclined couches, padded with some springy material. There were no sheets and blankets, and no temperature stabilisation plugs. It was an austere room.

Warren approached the tilted couch that had been indicated to him.

A grey face looked up at him from a grey, shapeless body.

He licked his lips, trying not to show the sudden, unexpected revulsion he felt, and said:

"Hello, Judith."

There was a long pause. Then the mouth moved as though still unsure of its own function.

"Hello, Warren."

"You recognise me?" he said eagerly. "You remember. You haven't forgotten me—and you're not going to, are you?"

The reply was measured

and unemotional. "I have not forgotten you. Not yet."

"And you're not going to," he repeated.

Superimposed on the standard Grey features he seemed to see, for a fleeting second, the features of Judith, and he was overcome by an appalling sense of loss. It was worse than it had been during his tormented, sleepless night. He felt somehow that he had failed, that he and Judith had never truly lived . . . and now she was gone, and he was talking to a ghost.

He tried to pull himself together. There was a job to be done; a campaign to be begun.

He said: "How do you feel? What's it like?"

"I cannot tell you. You would not understand."

"Now look," snapped Warren, "don't you start that! You don't want to get into Grey habits right away, do you? Can't you give me some idea—help me to get some glimmering of what goes on? Remember all the

things we planned; all the things we said we'd do if we became Greys . . . ? We were going to put the ordinary human beings first, remember?"

A pause, then: "Yes. I remember."

"Well, then?"

"But now it is different."

"You're like all the rest of them. They've promised you something big—dangled presents in front of you—offered you a good job, I suppose."

"It is not like that."

The indifference of the voice exasperated him. It was with the greatest difficulty that he curbed his temper and, in a carefully-controlled tone, said:

"I thought up some plans last night. I lay awake all night, Judith. I had to do something to save myself from going mad. And all I could think of was that we mustn't get out of touch."

There was no nod, no sound, no movement of sympathy.

"We must try to break the

spell of the Greys," he went on. "You've got to resist anything they try to put over. If you keep in touch with me . . ."

For some reason he found himself speaking slowly and deliberately, as though trying to put something across to a rather stupid person who was incapable of sustained concentration.

No. No, it wasn't like that at all. Rather, it was as though he were a child trying to attract the attention of someone older and wiser—someone who was really too busy to listen, who didn't want to be bothered.

That spurred him on. Judith was already in danger of succumbing to the Grey influence. He had to bring back to her mind the intensity and sincerity of those old plans and discussions they had had.

"I'll come and see you every day," he said. "You must tell me everything that happens to you. I'll keep a detailed check on all you tell

me. And then if they try to lure you away, I will at least have a lead on what's happening. I can follow up. I can get some notion of what it is the Greys are up to."

"Others have tried," was the response.

"But maybe they left it too late. Or they didn't persevere. Or they weren't as close together as we two always have been."

To this there was no reply at all. And he wondered about the truth of what he had said. He didn't feel close to this artificial creature lying on the couch. Of course he and Judith had always believed in people being happy if their minds were compatible, and their thoughts had always been shared: there was no reason why they shouldn't go on as they always had done, for her mind was still active. No reason at all. No reason why he should be conscious of a barrier between them. Yet he could sense that she was not hurrying to agree with him. He even felt that

if he did not insist, what he had said so far would drift out of her mind and she would not even bother to reply.

"They've got hold of you already," he said with abrupt bitterness. "You've soon forgotten — forgotten everything."

"It is hard to explain," she said. "One feels so different."

There it was again: that infuriating vagueness. But Warren was not going to be defeated. He settled himself close to the side of the being that he found it so hard to call Judith, and in an undertone outlined his plans. She would listen to all the Greys told her, and report to him when they met. She would try to get herself a responsible job and find out what their long-term plans were. She would, as soon as the opportunity presented itself, visit one of their exclusive clubs and find out what went on there. One thing that he dinned into her over and over again, as if to counteract the

weight of the propaganda that would be used against her: "You're not going to give in to them. You're going to be stubborn. You're going to remember that you are a human being and that your duty is to the human race."

"Yes," said the level monotone.

He left her in a mood of bewilderment, not sure whether he had achieved anything—or nothing.

Warren was sunk in thought as he made his way down the corridor towards the lift. He stepped through the door automatically, paying no attention to the other figure that entered behind him.

It was the sound of a quiet sob that aroused him. He glanced up.

His companion in the smoothly-dropping lift was not, as he had assumed, a Grey, but a young woman of about his own age.

He said uncomfortably: "Anything I can do?"

"Nothing," she said through her tears.

"Someone you're fond of? Ill?"

She nodded, then shook her head. "He doesn't call it being ill, though. None of them do. He's glad it's happened."

Warren stared, then light dawned on him. "You mean someone has gone over to the Greys?"

"My father."

"Oh! I'm sorry."

"He's not," she said with sudden vigour. "He's not at all sorry. For years he's been longing to reach the end of his ordinary life and go in with the Greys."

The lift halted, and the doors slid back. The two of them stepped out into the great hall, and instinctively fell into step, walking together across the smooth expanse towards the main entrance. Greys plodded silently about them.

At the top of the steps, Warren hesitated. He could not bear to go off alone into

the ordinary everyday world and pretend that nothing had happened. And he sensed the misery and loneliness of the girl who stood beside him.

He said: "Where are you going now?"

"Home, I suppose."

"Come and have a drink. There's a kafamat over the road."

"Well . . ."

Her uncertainty was easily overcome. She wanted to talk to someone, just as he did. They could talk at one another, not taking much trouble to listen: an audience, responsive or otherwise, was all that mattered.

They sat at a small table in the window, with the bulk of the hospital overshadowing them. Warren slipped coins in the slots, and in a few seconds the delivery trap opened and they took out their warm drinks.

To Warren there was no taste in the liquid. He watched the girl sipping at hers, and knew that she, too,

was unaware of flavour or warmth or sweetness.

He said abruptly: "I'm Warren Caldicott."

"I'm Deborah Quentin."

He nodded, registering the name and no more; and then the echoes came to life, and he looked across the table at her.

"Not Professor Alaric Quentin's daughter?"

She nodded, and gulped. The tears came back into her eyes.

"I see," said Warren slowly. Then he added: "His death is a great blow to all of us. He was one of the best scientists we have ever had. He was the only one who could win respect from the Greys. Now that he's gone——"

"He's glad to be gone!" Deborah burst out. "All he ever thought of was life in his laboratory. He was a good father to me—in his own way he was affectionate—but he never really cared for anything but research. He wanted to die. He wanted his

body to collapse so that he would be taken in with the Greys and given all their facilities. Travel to the planets, infra-atomic research . . . he fretted for the day when he would be one of the Greys."

"And now he's been taken over."

"Now," she nodded wretchedly, "he has been taken over. I went to see him today, and already he's far away. He's glad to have got away from me. Yes, glad! He doesn't think it's cruel to be so pleased: he just doesn't care any longer. He can't even be bothered to be polite. All that matters now is that he shall be released from the hospital and started on some scientific work."

Her anger faded as quickly as it had come, and she sat staring at the table.

"What will you do now?" said Warren quietly. "Have you any other family?"

"None. But I'll manage. He left everything very neatly. He's been planning it

all for years. Methodical to the end! Oh, yes, I'm well provided for. But"—she faltered—"I was fond of him. I'll miss him, and I know he won't miss me."

She wiped her eyes angrily, while Warren preserved a sympathetic silence. Then she said:

"I'm a fool to get in such a state about it. I imagine you've got your worries as well."

He did not need much prompting. In a few minutes he was telling her about Judith. When he had finished, Deborah leaned forward and spontaneously covered his fingers with hers.

"It's worse for you than for me," she said. "At least I've known it was coming. But for you to lose her like that . . ."

"I haven't lost her," said Warren, "yet."

Deborah's eyes widened. He saw that they were hazel eyes: bright with tears at the moment, they could be warm and delightful at other times,

he was sure.

"I've never heard of anyone keeping in touch with a Grey," said Deborah.

Perhaps he ought not to have spoken. Perhaps, he thought even as he was telling her his plans, he would have been better advised to go on with his scheme secretly. But there was something about her that made it impossible to remain uncommunicative. Briefly he told her what he hoped to do.

There was disbelief in her face. "It won't work."

"Oh, yes, it will." Because he wanted to be sure himself, he went on enthusiastically, expressing his confidence to her and at the same time bolstering up his own belief. He explained how he and Judith had been so close, how they appreciated, really, the ideas of abstract thought, and how they wanted to turn the undoubted powers of the Greys to a better use.

Deborah's expression was puzzling. When he came to the end and waited for her

to offer some encouragement, she shook her head slowly.

"She must have been an . . . an unusual girl," she said.

"She was. She had a remarkable mind. If I can keep in contact with her . . ."

Deborah eyed him quizzically. Unexpectedly she said: "Did you ever make love to her?"

Warren felt himself flushing. It seemed a monstrous question, and an irrelevant one, too.

"Really," he said. "I don't see what that's got to do with it. Anyway, it depends what you mean by . . . well, I don't see it does any good talking about it now."

There was an uncomfortable pause.

At last Deborah said: "I'm sorry. I had no business to ask such an impertinent question."

"Oh, that's all right."

But it had left him feeling strangely unsettled. There had been some implication in her question — something

sharp and feminine, almost malicious. She was one of those flighty young things, that was the trouble: her mind ran on romance and trivialities instead of on the important things of life. You only had to look at her to see that.

As though to prove it to himself, Warren looked frankly and searchingly at her.

Deborah had fair hair that was drawn back from her brow to reveal the beauty of her high forehead. Even though, in her distress at her father's transformation, she had not taken any pains with her appearance today, nothing could spoil the perfection of her features. Her mouth was small yet sensitive and generous; Warren could not help wondering what she looked like when she smiled.

"I'm sorry," she said again, getting up. "It's been so nice to talk to you. I oughtn't to have spoiled it by saying what I did."

He rose, and they went out

together. She glanced at him uncertainly as they paused by the moving paveway.

"I hope everything works out all right," she said.

"I'll let you know."

"Will you?"

Warren surprised himself by saying: "Can I see you tomorrow evening? Let me take you out somewhere."

"Well . . ."

"Or the day after. It'll be the week-end. If we can't be cheerful at least we can share our sorrows." He spoke lightly, with a deliberate facetiousness, but he found that he was waiting anxiously for her reply.

She studied him gravely, and now her eyes were clear and beautiful.

She said: "All right."

THE NEXT DAY HE worked like an automaton. For once the edge of his resentment was dulled. Usually he did the job perfunctorily, studying the records of the Education Bureau and making out a

formal report to his Departmental Director for forwarding to the Grey authorities, all without needing to apply more than half his mind. The other half rehearsed arguments—imaginary arguments with influential Greys, imaginary speeches to a populace ripe for revolution.

But today he did not want to think. He wanted the time to pass quickly so that he could be with Judith again. Resolutely he put speculations out of his mind, and worked hard: so hard that he had done two or three days' work in the space of his four-hour working day.

The time had passed quickly enough. He could relax now and let himself wonder about the coming interview. A faint twitch of dread plucked at his heart. The hospital was, for all its space and lightness, a frightening place.

One of his friends passed him on the way out. "Going flying this afternoon, Warren?"

"Not this afternoon."

"You don't get enough exercise. Grab yourself a nice wench, take her to Stellar Park, and begin to live, son!"

Voices chattered about him. A girl came to meet one of the men from the office, and they kissed. Another couple went past arm-in-arm.

Somebody laughed, and he heard an arch voice saying: "It's a great world."

A great world. Only if you didn't think. Only if you had no standards, no values, no essential seriousness of temperament.

Warren scowled at the crowds that came surging out on to the paveways. Many of them were heading for the restaurants in the centre of the city, and after that they would be going on to Stellar Park or the outskirts, where you could fly or go dancing in the floating halls.

He couldn't endure a crowd today. He wanted to get to the hospital quickly.

He flagged a helicar.

Now that he was on his way, he absurdly felt a desire to put off the moment when he and Judith would meet. He was rushing towards her far too quickly. Within a brief time of leaving the office, he was sitting beside the couch in the hospital.

The Grey—he found he could not call it Judith, though he tried to believe that Judith was there—was no longer lying down. It sat up, yet this did not make it look alive: it gave an impression of being a machine that did not spring into action until a human being gave it a reason for reacting. You felt you had to reach out and switch on.

Warren said conventionally: "Everything going all right? No complications?" As though, he thought, he were asking about an operation for appendicitis.

"I am well. And you?"

"I still don't believe it's happened."

"It has happened. You may be sure of that."

Warren leaned forward. "Tell me what sort of day you've had. What have you learned?"

There was a pause. When Judith began to speak, she did so in a precise voice that made her sentences sound like detached parts of a recitation. She had been taught a formal little lesson, and she was repeating it.

"I have been instructed in the first problems with which new Greys must cope. There are no restrictions. We may meet humans if we wish. We may retain our old friends if we wish."

"Then why do none of them—none of *you*, that is—do so? What goes wrong?"

"It is better for us not to torment ourselves."

Warren snorted. "That's a good one!"

The voice said, without the anguish or melancholy that the words themselves might have implied: "There is no feeling left, Warren. Warmth means nothing. There is no sense of touch, no smell of

flowers. Sound is a technical affair, not a sense : we hear sounds because we must, but they mean nothing. Music means nothing, because the rest of the body is not there to derive pleasure from it."

"I don't get that at all," Warren protested. "Music is the most perfect of the abstract arts. You don't need arms and legs and a torso in order to appreciate Beethoven."

"Without the human body, something is missing. It cannot be explained : it can only be experienced. And all the small sensual pleasures are gone."

It all came oddly from Judith. Warren was at a loss. Eventually he said :

"But you get used to that in time. It's only a matter of readjustment, isn't it?"

"Readjustment," the Grey echoed tentatively, without conviction.

"Do you mean to say that's all you've been told? What sort of job are you going to get?"

"I may go to Mars."

"So that's the game, is it? They want to get you away so that I can't keep tabs on you. Judith, you've got to fight against that. We haven't learnt a thing yet. We've got to find out what goes on in their secret council meetings, and in the clubs——"

"I asked about the clubs."

Warren caught his breath. Somehow the exclusive Grey clubs epitomised all that he most hated in the overlords. A world that boasted of its freedom, a world that was told over and over again by the Greys themselves that it was a wonderful place where men and women could live as they pleased : what place was there in such a world for buildings which were open only to the dictators? Once upon a time, said the historians, black men had not been allowed in hotels in many countries. There had been a time when Jews were persecuted. There had been houses and clubs in Eastern countries which were barred

to men whose colour was not white. All that, said the Greys, had been done away with: yet they maintained those palatial buildings, and no human being had ever been allowed in them. There were tales of orgies, of strange pleasures unknown to the unsophisticated folk of flesh and blood. There, if anywhere, lay the key to the real activities of the Greys. Such a place was a symbol.

Warren said: "What did you find out?"

"I will not need to go to one yet."

What does that mean? It's not a question of needing to go. I mean, you're a Grey now. If you want to walk in——"

"They say that I will not need to go yet. That is all."

He went on questioning her, without result. It was not so much that her replies were evasive as that their terms of reference were somehow not the same. She seemed to be judging his remarks by new standards that had been

insidiously established in her mind.

Not until he got up to go, feeling baffled and frustrated, did she offer a gleam of hope.

"Tomorrow there will be some developments. The classification process, they call it."

"I'll see you in the evening, then . . ."

Warren stopped abruptly. He remembered now that he had promised to take Deborah Quentin out. He cursed silently. He would have to get out of that.

But Judith, apparently unaware of his hesitation, said calmly:

"Not tomorrow. You cannot come tomorrow."

For a moment he wanted to challenge her on this. Then he decided to let it go. Give her a clear day, and she might learn something. If he came back the day after that, she ought to have something to tell him.

"Will you still be here?" he asked.

"I shall be in the Training Wing."

"I'll call for you there."

He felt that he ought to take her hand—her cold, artificial hand with its inhuman flexible fingers and its inhuman strength—and tell her to take care of herself, or something sentimental and human like that; but it was silly, and so he said nothing.

When he turned back for a second at the door of the ward, she—*it*—was not even looking in his direction.

Saturday was a bright day. Weather Control had been able to stabilise a depression, and the tentative promises of a sunny day were to be fulfilled. When Warren met Deborah near the uptown monorail terminus, she was wearing a fresh, sparkling summer dress that lay with crisp attractiveness against the sun-warmed smoothness of her skin.

He caught his breath. She was far too attractive. She was the sort of young woman

who took your mind off social and political problems: and such women are dangerous.

Deborah smiled at him, her eyes puckering enticingly. "Something wrong?"

"Not at all," he said. Oddly enough, he was conscious of a lightening of his spirits. This, after all, was Saturday, and he could be excused for taking time off from his problems. There was nothing to be done until he had seen Judith again tomorrow. He said: "Where shall we go?"

"Anywhere you like."

He said what he had never meant to say: "Stellar Park?"

She laughed. "I'd be glad to. I think we need somewhere frivolous."

On the train he was acutely aware of her shoulder against his. He wondered guiltily whether he was being disloyal to Judith. But this had nothing to do with that psychic *entente* between himself and Judith. This was a day's forgetfulness, a way of

filling in time and no more. It counted for nothing; it was isolated, and would lead to nothing.

He had been to Stellar Park only a few times before, and that had been some years ago, when he had gone along reluctantly with some rowdy friends. Even then he had not enjoyed the noise and excitement and boisterousness of the pleasure grounds. Now, standing beside Deborah, he looked with distaste at the signs glowing in the sky, invisibly strung across the heavens: the enticements of the Sensation Cave, the Underwater Adventure, and all the cheap shows and booths.

"You take life seriously, don't you?" said Deborah gently.

He turned to reply, to repudiate the implied reproach, but the words were snatched from his lips and blown away by a sudden gust of diffused music that seemed to rise from the very ground at their feet. The air throbbed with the

latest complex vibrachords, twitching at the nerves and blotting out coherent thought.

In the middle of the uproar he looked into Deborah's eyes and saw sadness welling up in them once more. He realised that her defiant cheerfulness was only a pose: she, like himself, wanted to forget, and had been looking forward to this day as something that would wipe out the past just for a little while.

Warren said quickly: "Shall we try the Underwater?"

At once she nodded.

They made their way through the surging crowds towards the edge of the sea and the gaudy booths shaped like whales and coral reefs.

Warren changed quickly in his booth into the sleek trunks and helmet, and fitted the small propulsion unit on his shoulders. Then he went out to the jetty to wait for Deborah. He looked down into the green water that shaded away to deep blue a hundred yards from the

shore. It looked cold, yet inviting. And down there it would be quiet. You could listen to music if you wanted to, by switching on the helmet receiver. But he wasn't going to do that. He felt suddenly glad that he had come, and that he had suggested this particular trip. Under the sea, you could shut out the babble of the world and the jarring exuberance of the persistent background noise.

Deborah joined him.

Her body was magnificent under the smooth-fitting costume. She stood proudly beside him, and suddenly he laughed—his first carefree laugh in a long while.

There was a faint spluttering inside his helmet as the speaker came to life. Deborah's voice said in his ear: "Ready?"

"Let's go," he said.

They went down into the water with a cool, invigorating shock. The small heater unit glowed into life, but on impulse Warren switched it off. The tingling vitality he

experienced was something he didn't want spoilt by an artificial heat stabilisation.

Deborah swam down beside him, twisting gracefully like a sleek and beautiful fish. They smiled at one another, their expressions comically blurred through the helmets and the distorting water.

Two hundred yards out, as they went down deeper and swam along above the bottom, watching the strange brown and golden fish leaping up from the rocks in a fantastic ballet, he switched on the heater. The world down here was becoming dark and chill. But he sank into it gratefully. His aches and confusions were drawn out of him, and the rhythm of his movements seemed to set up a corresponding, gentle rhythm in his mind.

"What's that over there?" he asked.

"The Quentin grottoes," she said. "My father found them and related them to one of his theories about . . . oh, about something."

The way in which she sharply finished told him that pain had jabbed at her once more. She kicked swiftly and impatiently forward, and in a moment he was racing after her. In search of forgetfulness, she laughed, and suddenly it was a chase through the winding underwater caverns, sending fish plunging away and drawing a fine flurry of grey material from the bottom, which soon clouded their helmets.

It was like groping around in a fog. Warren slowed down, anxious not to smash his helmet or rip his flesh against the jutting rock formations. He moved cautiously, trying to pick out Deborah from the slowly-subsiding cloud. He groped with one hand, and touched her arm. She stood still. The swirling fog dissolved, and now he could see her. She did not move her arm away.

Then, abruptly, her attention was distracted. She looked past him, over his shoulder.

"What is it?" asked Warren, turning quickly in case there was some unexpected menace coming on them from behind.

But there was only a motionless grey figure stationed by one of the jutting rocks.

Deborah said tautly: "One of the Greys. Doing sentry duty, just to make sure no one has an accident on the rocks."

"Even down here?" Warren swore softly. "Can't you ever get away from the damned things?"

"It's all part of their public service: there were one or two accidents down here in the early days, so the Greys had to instal one of their watchmen."

"Any excuse to intrude! Any excuse to watch every human activity!"

The taste of the day seemed to have been ruined. There was something disturbing and uncanny about the Grey—a creature down here at the bottom of the sea without any

mask or breathing apparatus. They swam away from it, but the underwater world had lost its charm. Within a few minutes they surfaced and made for the nearby shore.

Noise struck down at them once more. Silence was left behind in the clouded, twilit deeps; here on land there was music and laughter, and a determination to have a good time. The Greys had made all this possible: the Greys had organised the world so that men worked short hours and played long hours; the Greys had provided the leisure and opportunity for new sports, new pastimes, news ways of getting the best out of life.

If, thought Warren yet again, you didn't ask too many questions.

They sat in one of the open-air restaurants at the farthest edge of Stellar Park. The music was not too aggressive here.

Deborah said: "It's been a delightful day."

"I've enjoyed it," he admitted.

"But you're still brooding over something."

"I can't help it. This sort of thing—all this amusement—it's only a distraction, isn't it?"

"Is it?"

"The Greys like to keep us happy with this sort of thing while they get on with the real business of life."

Deborah fingered her lip. The early evening shadows fell across her face and gave it an added mystery, and, at the same time, an added melancholy.

She said: "What is the real business of life? You don't think their benevolence might be genuine?"

"Do you think so?" he countered, and went on brutally: "What about your father? Look how he wanted to get in with them. What does it all add up to?"

"I don't know." She sipped at her drink and looked at him over the edge of the glass. "I'm not sure that it

does any good talking about it."

"You can't just go on living as though nothing was happening."

"No."

But there was something dry and mocking in her tone. He stared at her. He wondered whether, after all, the sensible thing to do was to ignore the Greys. Let them be dictators, if it didn't interfere with ordinary life. Let Judith be swallowed up by them, as all the rest had been swallowed up, so long as he was left to talk to Deborah, to draw closer to Deborah, perhaps eventually to make love to her and share his life with her . . .

There was a cry that came to them above the distant music.

Deborah swung round in her seat.

Beyond them, along the line of cliffs overlooking the inlet that cut behind the restaurant at this point, a light was flashing. A man struggled on the edge of the

cliffs. Two other figures were holding him back — two figures that showed up, as the light grew stronger, as Greys.

The struggle was over in a few seconds. The three went away. Within ten minutes the rumours that buzzed from table to table in the restaurant had solidified: the true story had reached the place, and was being bandied about.

"Trying to commit suicide!" said Deborah, shaking her head. She lifted her hands slightly from the table, as though feeling drops of rain upon them, and turned her face towards the sky. "Who would want to leave the world on an evening like this?"

Her beauty cast a spell on Warren. But it did not completely entrance him. His stubborn realism asserted itself. He said:

"You see: they're everywhere. A man who wants to finish with life—perhaps for some overwhelming personal reason—isn't allowed to do it. Why? Are they afraid he's

deliberately trying to join them? Or are they afraid he'll damage his brain and be unfit for their ranks?"

"You can never leave the topic alone, can you?" sighed Deborah.

He felt suddenly contrite. He ordered more wine, they danced, and when he had taken her home through the glowing streets of the city he kissed her—tentatively, in a way that made her chuckle affectionately and say:

"You're rather nice, Warren. I'm quite alarmed when I think how nice you could be if you weren't so serious."

He thought a lot about her that night after he had left her, and a lot about what she had said.

But next day he was thinking about Judith again. He went off in a mood of grim determination to the Training Wing where she had said she would be.

They told him he could not see her. He argued, and they were polite but firm.

"You're keeping her away from me!" he shouted, losing his temper.

They told him that it was Judith's own wish. She did not wish to see him. He would not believe it. But they remained polite and firm and blankly unco-operative; and he went out into the sunshine swearing that he would find her somehow. He scowled at Greys who passed him on the steps: someday, somehow, he was going to break their secret world of dictatorial privilege wide open.

JUDITH WALKED past Warren as he went out. She still found it hard to believe that no one would recognise her. She was no more than a few feet from Warren, and all he did was scowl at her.

How long was it going to take her to get used to this sensation of impersonality? All the knowledge and emotion and memory that had once been Judith's were still

here, but in some bleak way she was detached: she wondered how long it would take to get over that feeling of wanting to reach out and touch, take hold, feel herself in contact with reality.

Touch . . . As she turned at the top of the steps to watch Warren disappearing into the distance, she put her new, artificial fingers against the marble pillar. They were the most perfect, useful, efficient fingers that Grey ingenuity could devise. They were far more sensitive than ordinary human fingers. Their responsiveness was immediate, and a thousand little fibres communicated the most detailed messages to the mind. Yet there was something lacking. Instinctively Judith turned her face up to the sun—and the surface cells told her that it was warm; and she did not blink, and was conscious of no deep, animal satisfaction.

If she had been capable of a sigh, she would have sighed. She turned and went

inside, her eyes adjusting at once to the cool, grey interior. Much cooler, said the surface cells, and an automatic adjustment was made to her body temperature control.

An even, unwearying voice was echoing down the corridor as she went towards her Group Instructor's office. She did not recognise the voice, for here all voices were the same, but the sentiments and the force with which they were expressed identified the speaker. Judith stood a few yards away, all her moving parts relaxed, until the exaltation should have died down.

Her Instructor was standing by his door. Facing him, Professor Alaric Quentin finished a fine peroration.

" . . . and I think that the sooner you recommend my trip to Mars, the better. Obviously the possibilities of linked constructive thought are infinite. As you will know, I have done a great

deal of research into psychic force patterns——”

“We know all that, professor.”

“Well, then, when can I get started? Ideal conditions at last. Just what I’ve been waiting for, all these years.”

“My recommendation will be considered along with those of the other Instructors. You will hear of your classification when Control considers the time is ripe.”

“Lot of messing about! Even now there’s red tape. I thought I’d be free of all that. A lot of reforms needed here. A great many things to be done.”

Quentin plodded off with the mechanical gait of a Grey, infused perhaps with just a suspicion of his own jerky aggressiveness.

Judith advanced towards her Instructor.

She said: “The professor seems to be full of ambitions. He’s very happy to be here.”

“So many start out like that,” said the Instructor.

“But in time . . .” Then he stopped.

“What do you mean?”

Instead of replying, the Instructor moved aside and motioned to her to enter the room.

Judith went in, and he followed her. They stood together in the middle of the room. Chairs stood against a wall, but they were rarely used: a Grey experienced no fatigue in standing, and there was no point in making a complicated mechanism for sitting down. One could do so if one wanted, in a series of short, clumsy movements. Judith had noticed that a few sentimentalists, still lamenting the ordinary life they had given up, sometimes made a point of using the chairs as though they wished to retain old habits. It was for such nostalgic beings that the chairs were provided. At this moment she felt, herself, that she wanted to sit down and pretend to be a normal, living woman again; but her pride kept her upright.

The Instructor said: "You took the first step, then?"

She nodded. "I did not see him. I sent a message that I did not want to see him."

"Good. You feel strong about it?"

"No," said Judith frankly.

"Resignation will come in time."

"I am not sure that I want to be resigned," said Judith. She felt weak. If she could have cried, she would have cried. She was angry with herself: but in this body there was no tingling of the flesh, no constriction of the throat, no pounding of blood or stinging of tears. "I want to go back," she said. "I don't want to let go of the world."

"It is like that for all of us in the early stages. But now you have taken the first step, the rest is not so hard. Perhaps you will be chosen to go to Mars. That is a much bigger break, but somehow you will find it easier. The old ties snap, one by one."

"Yes," said Judith. "I would like that."

She was not sure if this was true. She was not sure about anything. Warren's face seemed to haunt the depths of her mind. She was conscious of a dreadful loss—not only of what had been, but of the things that had not been and might have existed in due course, if only there had been time. If only she had known more about life while she was living it...

She said: "Isn't Mars getting overcrowded?"

"Certainly not. None of the planets are overcrowded. Do not forget that we who go out there cannot produce children. Even though we may live for a thousand years, we must sooner or later disappear, and then there will be room for those new Greys who come behind us."

"Yes, but a thousand years is a long time. Human children are born in generations of about twenty-five years."

"Our solar system is still

large. We are still only pioneering on the outer planets. It has all been calculated. Do not be alarmed. There will be room for you on Mars, if you want to join the practical groups. Or there are the thinkers on Venus."

"I'm no thinker," said Judith, with what was meant to be a laugh.

"No? I am not sure. You will have to find out for yourself."

"What shall I do to-day?"

The Instructor hesitated. Judith wished she knew the meaning of these hesitations and the declarations that often followed them. In this cold world, faces gave nothing away. There were no betraying expressions, no human intonations, and no nervous gestures.

Then the Instructor said: "According to your grading, you should profit from a study of the Community Centre organisation. Report to me when you have been there an hour."

"But I've never felt any—"

"There is a system in all we do. Please consider it in great detail and report back."

It was not a command. But you did what was suggested to you in this strange world, this twilight world: you did it because you wanted guidance, and grasped at whatever was offered.

Judith went off. The Instructor, who had been here for two hundred years now, made a methodical note and then sat back. If he had any feelings or regrets, nobody now would ever catch a glimmering of them.

The weeks went by. There were lectures, and there were training courses. Judith realised that, although she was not being regimented in any way, she was being carefully guided. Her aptitudes had been studied, and the appropriate steps were being taken. The only thing was, she herself didn't know the direction in which she was being steered.

She did several jobs of work. It was not merely a matter of going to school. She played her part in the community, but at the same time she had the feeling that this was only a training period. She was on probation. Sooner or later—her Instructor would give no indication of when it might be—she would be told what her job was to be for the next thousand years.

There were other people. It could not be said that she was forbidden to make friends: but somehow one did not make friends. The meaning of the word had altered, or it had ceased entirely to have meaning at all. One had colleagues, associates, workmates . . . but not friends.

This was something she had not expected. It did not fit in with the ideas and theories she and Warren had so often exchanged. They had visualised an autocratic society which lived on the best that was to be had. An

intellectual aristocracy, arrogant and steeped in luxury: that was how the Greys were regarded. But now she was faced with an austerity that was almost terrifying. She knew, as no flesh and blood human being could know, the deprivation that was experienced when one had lost all the human attributes. There could be no luxury and no debauchery for creatures who worked like machines: the mind could derive no sensual gratification from artificial reflexes, and clicking of relays.

What was there to live for?

It was a terrifying question. Human beings might ask themselves that, but it was only rarely that the question became desperate. Something would come along that made them forget the whole thing. They did not pursue it. Forgetfulness came easily. But now there was no forgetfulness: the mind was appallingly clear.

Judith went to her Instructor with the question.

"Where will all this lead? What will make the next thousand years tolerable?"

His answer seemed almost a mockery. "You are not satisfied with the prospect of abstract thought?"

"No. How could I be? What human being ever could be?"

"Or the joy of serving your fellow beings? Of making the world easier for creatures of the kind that you once were?"

"They don't appreciate it," said Judith in anguish. "I know they don't. I never did while I was alive. Some folk get along all right without worrying, but they're the insensitive ones. The others don't like what they call the Grey dictatorship. They spend half their lives fretting, saying how wonderful it is to be a Grey. And *this* is what it is like. Why aren't they told? Why don't you tell them there's nothing to be envious of?"

"Would they believe such a story?"

"If you were convincing enough. If you showed them—somehow."

The Instructor's silence was, this time, a sceptical one. At last he said:

"It has been tried. In various ways we have tried to explain to human beings that ours is a life of pure reason and that they should make the most of their own life while it lasts. You must have seen our proclamations yourself. Did you believe them?"

"No," Judith admitted.

"The insensitive ones paid no heed. They did not mind. We made life comfortable for them, and they indulged themselves without worrying. The sensitive ones continued to resent us, believing that we were trying to keep the good things to ourselves. Only once or twice did we convince anyone of the true state of affairs in our existence. And that was the worst of all. In comparatively early times, there was a revolt against our growing power. We knew that an

uprising was scheduled to take place. We talked to the ringleaders, who were all intelligent men — scientists, idealists, thinkers of the first grade—and showed them just what life here was like. We convinced them. We convinced them too well: a large number of them committed suicide in such a way that their brains were irrecoverable. Others simply disappeared. They didn't want to join us when their bodies died!"

"And if you made everyone see what it was like——"

"Then we should lose all the highly-developed minds. Only the unthinking, the heedless, the unintelligent, would be available. Our work for the human race would be hampered enormously. For their own good we keep ourselves aloof and secretive. We do their work for them, watch over them . . ."

"And still," said Judith, "they will never be happy."

"We must just do what we

can. Things are better than they were five hundred years ago. They continue to improve."

"Materially, yes," said Judith. "But in what other way? If men lose their initiative and leave their destinies in the hands of disembodied brains that have really ceased to be human, what dignity is left to the human race? Is material comfort enough?"

There was another pause. It was as though the Instructor were turning over what she had said; but it could hardly be because the idea was new to him.

He said: "You wonder about that, do you?"

"Of course I do. It all comes back to the same thing: what makes life—our sort of life, as we are now—worth living?"

She received no answer. To her surprise, the Instructor asked her to report for a lecture on Venusian colony conditions the next day.

In a mood of indecision,

with a prickling of fear in her mind that might have led her to scream if her throat and mouth had been human, she went out for the rest of the day. She went and watched Warren's office building until he emerged. She followed him. Men and women stood aside to let her pass: some indifferent, some curious, but most of them with envious, resentful faces.

Judith followed Warren when he took Deborah out. She remained unwearyingly close to them, unobserved, undistinguished from the other Greys who went to and fro. And in the evening, her eyes adjusting automatically to the twilight, she watched as Warren kissed Deborah.

Judith studied them. Part of her was detached and analytical. She watched Deborah's arm moving around Warren's shoulder, and the pressure of Deborah's fingers on Warren's back. She saw their eyes closing, and marked the limpness of their

bodies as they rested in a close embrace.

And another part of her was crying out with anguish. Warren had never kissed her, Judith, like that. This was something she had never known. And now it was too late. A foolish, simple human affection that meant nothing in the cosmic scheme of things — a minor animal pleasure that could be discarded by a mind capable of abstract thought . . . but she yearned for it as she had never yearned for it while she was alive and foolish.

Too late.

WALKING BACK towards the monorail stop, the two of them saw the Grey standing motionless near a group of drunks who were singing bawdy songs about the Greys.

"Another policeman snooping!" said Warren.

"It's not doing any harm," said Deborah, her arm linked in his. She brushed her head against his shoulder.

They went past the Grey, who watched them go.

Warren kissed Deborah once more before they reached the station, and then looked back.

Deborah said: "What's wrong?"

"Nothing. Nothing, I suppose. But . . ."

"Well?"

"I ought to make another attempt to get in touch with Judith."

"I thought you'd forgotten her?" said Deborah, with a touch of asperity.

"I ought not to have given up so easily.

"Are you getting bored with me?"

He looked down into the perfection of her face as they stood on the brightness of the platform. "You know I'm not. But it makes me feel rather ashamed—getting so much out of life that I've just let go of Judith."

"She wouldn't see you, would she? She didn't want to. That's enough, surely?"

"That was the message I

got. But how do I know it's true?"

They did not say much as the train sped back towards the city. But when they approached Deborah's home, he was impelled to say:

"How do you feel about your father? Don't you ever . . . well, wonder?"

"He's forgotten me," she said, "and glad to do it. I'm trying to forget him. I've just put up a wall. I don't intend to fret about it."

Warren shook his head. When they parted, he knew that Deborah was annoyed by his abstraction; but once he had begun to think about Judith, he could not put her out of his mind. The viewpoint had imperceptibly altered: originally he had planned on receiving information from her so that he could understand what the Greys were up to; now his feeling was, incongruously, one of responsibility towards her. The message he had been given was almost certainly a fake. Judith had

been trapped by the Greys and not allowed to communicate with him. Or else she had been lured into accepting their values. He must save her.

It was a fine, noble, defiant thing to say. But it was not so easy to know where to begin.

Warren visited the hospital and the Training Wing. He was treated with cold courtesy, and all his resentment against the Greys came boiling up again. He was ashamed of himself for having let his growing devotion to Deborah take up so much of his time. That was what the Greys had always counted on — the human desire for an easy, uncomplicated life, the love of pleasure.

"I wish to see Judith Carmichael. There's nothing wrong in that, is there? If you're keeping her prisoner for any reason——"

"Why should we keep her prisoner? She is one of us."

"All I know is that we

agreed to keep in touch, now you won't let her see me."

"Has she expressed the wish to see you?"

Warren stormed at them. They remained unmoved. He could not understand how he had come to let his hatred fall into abeyance under Deborah's influence. The power of these arrogant machines must be broken. Machines: that was all they were. He must save Judith from such a fate, and use her in his campaign.

He said: "Can you take a message for her? If there aren't any restrictions—and you say there aren't—is there any reason why you shouldn't deliver a message to her and say that I want to see her?"

"If she is available, we can pass it on."

"Available?" he echoed.

"She may have gone to another planet. Her work may make a meeting between you impracticable."

"Well, deliver the message, anyway."

He left word that he

wished to see Judith. He would call here daily for a reply; or she could get in touch with him in any way she chose.

It seemed feeble, but he could think of nothing else to do. He went past great tiers of offices, loathing the Greys who ran everything so efficiently; he passed Greys in the street, and wondered what awful things happened to ordinary human minds to turn them into such cold, unloving machines.

Once more the sight of the entrances to those exclusive clubs enraged him. The stories and rumours added up again—to what? The inner rooms that gossip spoke of. Gaming rooms, secret conference rooms, places of debauchery on a scale unknown to normal human beings . . .

"What does it matter?" said Deborah. It was their first quarrel, and her distress was genuine. "There's something wrong—abnormal—about your interest in someone who's died."

"She hasn't died. It isn't the same thing at all."

"As far as we're concerned, it is," snapped Deborah. "All this worrying about what happens—it doesn't help. Can't you take it for granted that there are two races now? If life is all right for us, what does it matter what the Greys do? We can live and be happy; we're not persecuted; nobody interferes with us."

"That's a dangerous attitude. Besides, what is the point of the secrecy? It's suspicious, you've got to admit that. What's it like to be a Grey? Why don't they tell us?"

Deborah pushed back her hair with one impetuous hand. She made a wild, bewildered gesture.

"How can we tell? There are some questions that you can't expect to be answered. You can't explain to a two-year-old how an atomic motor works. He has to wait until he's at a stage to understand that sort of thing.

Maybe it's the same for us, in this connection. And what does it matter? Once upon a time people worried about life after death, and it did them no good, because there was no way of finding out what it was like, without dying. To-day we're not so worried, because we know when our bodies die we've got another thousand years or so to go."

The remark struck a query in Warren's mind. It had never occurred to him before to wonder what the Greys thought about life after death. It was a strange speculation. It was one of those abstractions that could give rise to a stimulating argument. *

He looked at Deborah, and suddenly cursed himself for being such an awkward character. She was unhappy. She got no pleasure from arguments and abstractions.

He took her arm, and she forced a smile.

They said no more about Judith or about the Greys

that evening. But Warren had not abandoned his intention of trying to get in touch with Judith.

I want, thought Judith desperately, at least to be able to dream. I want my mind to stop being clear for a while: I want it to be hazed by daydreams. I want to relax, to pretend that the sun is shining and I am lying on a beach, and Warren is beside me, and he touches my arm as he has touched that other woman's arm, and I want the taste of strawberries and the clear, cool breeze on my cheek and the sights and smells and sounds and all the feelings, and love and laughter, and, oh, why didn't I know what life was while I was still alive?

I want. I want.

Her Instructor said in his dispassionate voice:

"I am sorry to learn that you propose to answer this message the man has left for you. I had hoped you would have been able to overcome such impulses."

"There's no reason why I shouldn't see him. It doesn't mean anything."

"If it means nothing, why see him?"

"I shall go on being restless unless I do. Perhaps if I keep in touch with him, things will be better. I shall gradually get better. We shall drift away, and that will be the best way."

"It has rarely worked like that in the past. That's why we discourage it."

"But you don't forbid it?"

"We do not forbid it. How could we plead any justification for so doing? You are new to our existence, but you are nevertheless our equal. All Greys are equal. The only laws are those that are instinctively recognised by each and every one of us."

"In that case I will do this my own way," said Judith.

"Until you have freed yourself from such an obsession," said the Instructor, "you will be a ghost—an earthbound ghost, wandering between two worlds."

The severity of the criticism was like a physical blow; but it was the nearest the Instructor would ever come to any attempt to coerce her.

As she was about to leave, he spoke suddenly:

"A moment. Wait."

Judith turned.

"Will you try one thing more first?"

"What sort of thing?"

"A way of forgetfulness. A substitute. You are not the only one who has yearned for the world left behind. In some cases it gets worse as time goes on. And then we offer the Panacea. Before you go on with your own idea, please try this."

Curiosity, if nothing else, led her to accept the suggestion. But she was still thinking of Warren as they approached one of the large buildings near Saturn Square. Indeed, it made her think even more acutely of Warren, for here at last she was approaching one of those mysterious gathering-places

of the Greys which had so incensed him.

They went in and crossed a solemn, imposing foyer.

To their right was an open door, and inside it a discussion was going on. The voice of Professor Quentin rose above the general buzz of conversation.

"It's disgusting, the way some of you slip back into that sort of make-believe. Here we are with the universe in our grasp, and you keep harking back like a lot of sentimental women to the past—dreaming yourself back into that slovenly, hopeless world . . ."

The voice faded away behind them. They passed a group of Greys walking rather unsteadily.

If Judith had had a human back, she would have felt a prickle of unease down it. Absurd thoughts flitted through her consciousness: thoughts of opium dens, of the sensual stimulants of the fairground booths in some of the more disreputable pro-

vincial cities. Surely her Instructor was not proposing that she should drug or drink herself into insensibility?

Then she realised that drugs and alcohol would have no effect on her. Except to rust her internal workings, perhaps.

A door opened before them. They went into a long corridor, on each side of which were small cubicles.

The silence was a strange silence. Utter stillness that was somehow loud and overpowering. Judith sensed that most of the cubicles were occupied. It was as though the people in them were thinking, concentrating . . .

Without a word the Instructor led her into one. She lay on a couch as though in hospital. A pair of anodes were clamped to her head.

"To-day you may have twenty minutes," said the Instructor. "You may not wish more. Later, the decision will be your own."

He left her, and the door closed.

A pulse began to beat through her mind. The walls of the cubicle receded, then contracted, then receded again, and this time went far, far away.

She felt sunshine warm upon her. She lay on a beach, feeling sand between her toes. When she dug her fingers down, they reached colder, damper sand, and the wetness of it was a cool benediction on her flesh.

Warren laughed beside her. She turned to look up at him, and he put his hand on her arm. The grip of his fingers was savage and exciting.

She said: "Why did you take so long?"

"Do you love me?" he said.

Their mouths met and parted. The breeze blew cool and refreshing; and then they were swimming, the water was cold and exhilarating, and she tasted salt on her lips.

For a space of time that in her imagination was meas-

ured in hours, yet seemed to be over in a flash, and was in reality of twenty minutes' duration exactly, Judith lived in the true world—the world she had neglected while she actually belonged to it.

Her awakening was a wretched one. The walls of the cubicle came rushing back, the door opened, and her Instructor came in.

She stared at him with hatred: but of course the hatred did not show. Mobility of face and responsiveness of body had been left behind in that dream world. Only mental agony remained.

He said: "Did you find that everything went as you would have wished it?"

She got up. "I feel unclean," she said. "I feel as though I have done something immoral — something cheap and perverse."

"I see. Some people do feel like that. But this is better than trying hopelessly to cling to the past by maintaining relationships with actual people. It is the best

solace we can offer until you have completely broken away from the old world."

Judith said: "I shall not come here again."

"The decision is your own, of course. This Panacea is designed only for those who cannot do without it."

"I shall see Warren, as I planned," said Judith.

"I am sorry to hear it. You will regret it. It will do neither of you any good."

Judith walked stiffly out without replying.

THEY MET IN THE dunes beyond the city, with the blue sea gleaming before them. There was nobody near. To the north, men and women on skis were skating out across the gently undulating surface, but the sound of their voices was very faint. They were no more than flecks of colour on the dazzling water.

Warren said: "I thought I'd never be able to find you again."

"I did not mean you to do

so. Not at first, that is."

"So it was true what they told me: you really didn't want to see me?"

"I did my best to cut myself off because I believed it was best."

Warren looked at the emotionless face, and found it incredibly alien. He shivered. He had somehow not expected to feel so remote.

He said: "What have you learnt? You're still in favour of breaking the power of the Greys, I suppose?"

"I have learnt," said Judith slowly, "that the Greys derive no pleasure and no advantage from the exercise of power——"

"Now, wait a minute." So she had been subjected to propaganda: that was what it was; he had suspected she might succumb!

"I have learnt," she went on inexorably, "that the life of the mind is not the beautiful thing philosophers have claimed. To be divorced from the body is not a wonderful

advantage. I have learnt that the sun and the wind and human love are far more important and mean more to the mind than all the philosophical speculations and theories."

Warren gaped. He thought suddenly of Deborah, and she seemed very real. Judith, here before him, was unreal.

Suddenly her words quickened. While the voice was still mechanical, produced by a thousand little vibrations of a delicate, finely-mounted diaphragm within the letter-box mouth, it became swifter and more urgent. She said:

"Why did you never talk to me the way you talk to that Deborah woman, Warren?"

"What do you know about Deborah?"

"I know that you've held her in your arms and murmured in her ear, saying things you never said to me. I know now that I never even began to live. You persuaded me that we were kindred spirits—that was your phrase,

wasn't it?—and so we were above all the sentimental nonsense that other young couples indulged in. And I believed you. I thought so much of you that I was sure you must be right. Books and literatapes and generalisations were all that we ever shared."

"But you weren't the sort of girl who——"

"How did you know what sort of girl I was? Did you ever try to find out anything about me? You took it for granted that I wanted only to listen to you and encourage you in your petty grumbings against the Greys. I never had the chance of learning how sweet life could be. But you haven't been so dispassionate with this Deborah, have you? Now that it's too late, I know what I might have been to you. Now that it's too late."

Warren felt a cold dread. This was something he had never expected. The thought that a machine could frame such remarks, driving them

home with such force, was a terrifying, unnatural one.

He licked his lips and thrust his hands down into the warm sand as though to push himself up and escape. He said :

"Things are different. I mean . . . well, life goes on, you know. If I'd realised . . . But there's nothing to be done now, is there?" There was a pause. She did not reply. "Is there?" he said again.

Judith moved towards him. The machine was ungraceful, but in some way horribly purposeful.

The metallic voice said : "I'm lonely, Warren. You can't understand the meaning of this loneliness. If I can't have you as a human being, as Deborah is having you—talking and laughing with her, touching her arm, making love to her—if I can't have that, at least I have a claim to your mind."

"Of course you have. We always got on well together. We always had plenty to say

to one another," said Warren desperately, wildly.

"I think you should join me."

"I don't know what you mean."

"Perhaps this world will be less lonely if you're in it with me."

Warren tried to cry out, but the flexible, strong fingers were at his throat. He lashed out, and bruised his fists against the unyielding body. They went down in the sand together, and with remorseless fingers tightening in a grip that could not be broken.

The blue of the sea and sky was shot through with vicious colours before Warren's eyes. Vainly he hammered against the metal, feeling himself growing weaker, with a pounding in his head that threatened to split it open.

"Come with me," said Judith. "You must come."

Then the pressure relaxed. There was another figure there—a Grey who prised Judith's fingers open and pulled her back.

Warren lay where he was for a moment, fighting for breath. His throat ached. He tried to push himself upright, and fell back. The two Greys stood over him, one restraining the other. He could see little difference between them.

One of them spoke, and something in the spacing of the phrases told him that it was not Judith.

"You have been told what our life is like. Perhaps you will realise now that we are not to be envied. Your time will come soon enough—don't try to find out too much now. Go back and live."

And then Judith spoke. There was no regret in that voice which could express neither happiness nor regret. She said:

"Yes, Warren. I am sorry. You see what madness can possess us. Go back . . . and don't waste life. There isn't much of it."

Then she and the Grey who had come to Warren's rescue turned and stalked off. They

lumbered over the sand dunes, leaving him to struggle to his feet and make his way home.

He was weak and enervated. It had all been a nightmare. He had a vision of the Greys living in a cold, sterile limbo—into which he himself would one day be drawn. The terror came over him in an icy wave. He started away from a Grey he passed in the street, and looked at the unconcerned faces of the human beings who milled around him.

A week later he and Deborah were married.

The Instructor said nothing to Judith. She waited for condemnation or criticism, but there was no open comment. The silence weighed down on her. She sensed reproach, and wished that it could be spoken.

In the end it was she who broached the subject.

"My attempt to kill Warren . . . What are you going to do about it?"

"The attempt did not suc-

ceed. Such attempts are never allowed to succeed."

"You mean there have been others? The same sort of thing has happened before?"

"Frequently. We are prepared for such mistakes."

"I don't know how I could have been so foolish. It was madness. I don't know what I'm going to do."

"You would care to visit the Panacea, possibly?"

"No," snapped Judith. "That hideous pretence—it's degrading."

"The pretence is all we can offer. If you long for the life of the senses, the physical existence of your human frame, there is no other substitute."

"I must turn my back on all that."

There was one of those pauses fraught with meaning.

Then the Instructor said: "What do you want to do?"

"There's no such thing as 'I want' any longer," said Judith. "I just want forgetfulness—or to be told what

to do. There doesn't seem any way out. Nothing that I think or recall from that other life applies any more. If only there could be darkness . . ."

She hesitated, then went on:

"Why do the Greys go on? If existence is misery for all of us, why don't we give up? We could let ourselves die—turn off the power, let our robot bodies run down. Then human beings wouldn't feel resentful any longer, and we would know peace."

"It is a question we all come to."

"And the answer?"

"There are different answers. Let me tell you what you have not so far been told: if you wish to end your life now, you may do so. There is no restriction. We do not forbid suicide, though we deplore it."

Judith felt a surge of relief. It would be so easy. The idea of that beautiful, endless sleep, waiting for her as soon as she choose to accept it, was a warm promise.

She said: "And a good

many Greys do finish like that?"

"A certain number."

"What about the others? What makes existence tolerable for them?"

"There are different answers," said the Instructor again. "You have been told, before you came here as well as since you joined us, that the Greys work for the good of mankind. Terrestrial and interplanetary administration is in the hands of the Greys. We work on other planets in conditions that no human being could survive. We are the organisers and, one might say, the guardian angels. There is nothing in what we do that gives us any personal gratification——"

"But why go on doing it? Human beings don't want it. They are full of suspicion. They would be glad if the Greys were wiped out. And it might do them good: it would renew human initiative."

"Would it? It might renew old jealousies and lead to

new wars. You cannot repudiate scientific progress, even when it takes a wrong turning: and we don't know yet whether this is a wrong turning or not. All we know is that this thing has happened, and we must cope with it. We must *cope*. If we scrapped ourselves now, there would still be resentments. The more sensitive men might be persuaded to understand. But the others—the vast majority — would be furious. They would hate us for destroying the secrets of those thousand years that are now promised to every man when his body ceases to function. And in a generation or two, even the intelligent ones would have forgotten. They would strive to re-discover the secret. And in due course they would do so. They would have to start all over again, making the mistakes that our earliest members made, painfully learning from experience and rebuilding our interplanetary empire. And in the meantime? The prob-

lems of the overcrowded world would have to be dealt with by human beings rather than by ourselves. It would be a hopeless retrogression. Things may be imperfect now, but we cannot turn back: we must struggle through, and see what is waiting on the other side."

"It's a pity this unnatural system of prolongation of the mental life was ever thought of."

"There were those," said the Instructor, "who lamented the invention of the aeroplane. Possibly they were right. But once it had been invented, it could not be repudiated. When men have brought about a change, they must deal with the consequences of the change, not try to rub it out and act as though it had never been."

Judith felt lost. The momentary illusion of comfort was fading rapidly.

"But," she ventured, clutching at a strand of hope, "you say it is all right if any

of us wish to . . . to play no further part? We can die?"

"You are allowed to die," conceded the Instructor. "But what will happen then? What lies beyond death?"

She stared. The two faces regarded one another, and saw what might have been reflections in a mirror.

"I don't understand," said Judith. "You're not suggesting . . . ?"

The words failed to come. She could not deal with concepts that were unfamiliar to minds of her century.

"I suggest nothing. Anything I said to you would sound old-fashioned. This is a subject on which we make no declarations. We do not give lectures on it. It is something you must find out for yourself, if you wish to find it."

Judith hesitated. Then she said: "You think I should go to Mars? Just go on working for the benefit of the human race . . . waiting until I can die in the ordinary course of events?"

"You can stay on Earth if you wish. There are useful jobs here. When things become too overpowering, you can resort, as so many of us do, to the Panacea——"

"No!"

"Or you can join the colony on Venus."

She sensed some meaning in this that was more intense than anything which had yet been said to her.

"You've never told me exactly what the Venusian group do."

"Because we down here are not sure. We do not know what they are really searching for, or how close they have got to it. All we can say is that they lead a monastic life, seeking, perhaps trying to find the same answers that we are all seeking; and perhaps taking a more promising road than the one that we are on."

"You mean . . . a religious order?"

"Religion? I cannot say. Not what our ancestors would have understood by that

word. Something beyond."

"But what can there be? The human race gave up the worship of supernatural beings centuries ago."

"That could have been a mistake. Just as we are superior in many ways to the human race, so there may be something superior to ourselves. We work for human beings, although our capabilities are greater than theirs. And when we ourselves die, there is no telling what work still lies ahead. Some of us work in a practical way now; the Venusians are reaching outwards, upwards — and theirs may be the right answer in the end."

"You can't tell me more than that?"

"No more than that," said the Instructor.

Judith spent several days considering the detailed reports available on the Martian settlements. She studied in the terrestrial administration offices, along with several newcomers to the Greys who fancied the idea of adminis-

trative posts. Once she went to the Panacea, but hesitated on the steps and then turned away.

In the end she came back to her Instructor and said: "I will go to Venus."

The brief nod of the head was formal and unsurprised. "We were sure from the very beginning that that was where your interests lay."

"But I've never had any idea——"

"It was clear to us. We do not often make mistakes. But we must let each mind make its own discoveries."

"If I'm wrong? If I want to come back?"

"Then you may come back. But you are not wrong. I envy you. I wish you peace and fulfilment: and may you find the answer."

Warren and Deborah were happy for some years, and then reasonably contented. Time blurred the first passion, and blurred many other things. At first his feelings about the Greys were com-

pletely submerged: when they stirred in the back of his mind, he repulsed them. The horror of Judith's attack, and the threat that lay behind it, gave him an occasional nightmare. But life was vigorous, and in the daylight his uneasy memories were blown away.

It was Deborah who first prodded his old resentments into wakefulness.

"When," she demanded, "are you going to get promotion? You've been in that office long enough, goodness knows."

"I don't see how I can get any higher. All the higher-grade posts are filled by Greys."

"The Greys are getting their hands on everything nowadays. Haven't you got any courage at all? When is someone going to do something about it?"

"Well . . . there's a new party being formed to try to counteract the Grey influence in the World Council. But I don't know if it'll come to anything."

"It certainly won't, if folk like you sit about doing nothing. I wish I knew what the Greys were up to. If I were a man, I'd want to break their power once and for all. If you had any pride . . ."

He remembered Judith, and all that Judith had implied about her twilight world. Yet now it did not seem so frightening. It did not even seem true. How could he be sure that it wasn't all nonsense? The Greys were always handing out propaganda designed to soothe people and keep them from rebelling.

He wondered whether to tell Deborah what Judith had told him—he had never mentioned it to her—and then realised how absurd it would sound.

Of course it was absurd. He must have been a fool ever to have believed it, even for a moment. He had been a coward.

The sight of a Grey in the street became once more a source of bitterness. He

joined the Human Rights Association, and became one of their most virulent campaigners. Anger at his own gullibility drove him on to more and more vigorous attacks on the Grey overlords.

He was one of the leaders in the armed uprising that took place on the first day of the great Interplanetary Conference in the metropolis. It was put down without much trouble by the Greys, and the only casualties were those men who, in the struggle on the steps, fell and were trampled to death.

Warren was one of the victims. As death came to him, he thought, with a strange mixture of panic and exultation: Now I shall know. Now I'll see what these dictators are like, and what sort of autocratic lives they lead. But I won't be like the rest of them. I'll be loyal to the human race. No inducement will tempt me to be really one of them. Nothing. Now I shall see . . .

Here is the answer to the poser
set last month :

The Non-Expanding Universe

by Professor Delwood

Last month it was explained why the red-shift of the spectral lines in the distant stars was considered to be a proof that the whole universe was expanding. But also it was stated that the proof was not completely watertight. An alternative explanation of the red shift will now be given which does not imply an expanding universe.

When we see a band of calcium light from a distant star we do not see one continuous vibration which goes on day after day, year after year. The light received consists of a superimposed collection of thousands or millions of light quanta each given off by an individual atom.

Consider one simple quantum of light. It consists of a wavepacket, a vibration which

starts from rest, increases in amplitude to a maximum after, say, a few million vibrations, and then decreases back to rest. Now if that portion of the wave packet where the amplitude is increasing should move with a velocity ever so slightly in excess of normal light velocity, while the rear of the wave packet of decreasing amplitude moves with slightly less than normal light velocity, the effect will be to gradually increase the length of wave packet, increase the wavelength of the light, and thus cause a red shift proportional to the time the light has travelled.

Why should the light velocity vary thus? It is reasonable to assume that the velocity of light is affected by a gravitational field. It has been

shown that light is deflected by a gravitational field. Relative to a universal time scale this implies that the light must be slowed down in the region of high gravitational potential. Let it be further assumed that the light velocity decreases when it is approaching, and increases when it is leaving a region of high gravitational potential, and this will be a sufficient ex-

planation. For the light quantum has energy and therefore mass. It will thus form its own gravitational field. This would speed up the van and slow down the rear of the wave packet. Only very very slightly maybe, but the effect after, say, a million years could be quite noticeable, and give us just the observed red shift without an expanding universe.

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Nobody can be sure what it's like in space. Perhaps—

IT'S DARK OUT THERE

by Sydney J. Bounds

INSIDE the ship they had to imagine the vast crowd, the lusty cheering. It was not hard to imagine, for the excitement had been building up over months, and the millions who could not get near the firing range were watching on TV screens. The eyes of the world were centred on that tiny metal cylinder.

Geoff Peters, strapped securely to a sprung and padded seat, grinned across at his companion, and said: "Feeling good?"

"No."

"Don't let it worry you—we'll come back."

Larry Forman let the conversation slide. He had never felt like this before, his muscles taut, his brain racing. He wished that he had something to do, something to take his mind off Margaret. Peters

was lucky; he had an easy-going disposition and could move from one love affair to the next with a cheeky grin and no hard feelings on either side. Forman was different; for him there was only one woman in the world.

He remembered the look on Margaret's face as he had tried to explain what it meant to him to go on this first space-flight. He remembered the shocked expression as he had talked about divorce. There had to be a divorce—no married man would have been allowed to make the trip.

"It's only for a few days," he had said, "and we can re-marry as soon as I get back."

"If you come back," was all she said.

There had been no tears, no reproaches. She had accepted his decision with an outward

calmness that frightened him and made him wonder whether she really cared. It was only now, strapped down and waiting for take-off, that he knew for certain; she had taken the sacrifice without hysterics and that was the measure of her love. He thought of her, where she would be now, in the cathedral, praying for his safe deliverance.

Geoff Peters felt like talking. "That divorce of yours, Larry. What really happened? Did Margaret agree?"

"Yes. We'll re-marry. I've a special licence in my pocket."

Peters whistled softly.

"*Firing in sixty seconds*" said a voice from the radio box.

Both men tried to think of nothing, waiting . . .

In sixty seconds time, the first manned spaceship to leave Earth would start on a journey to circle the moon. No landing was intended. A round trip, cameras recording the moon's surface, then back to Earth.

The radio again: "*Firing in thirty seconds.*"

Too late to back out now, Forman thought—and wondered about the ships which had not come back. True, they hadn't been manned, but . . .

"*Firing in twenty seconds.*"

Anything could have gone wrong on a remote-controlled ship and no one any the wiser. Only there was a rumour that another power had lost a manned ship. Just a rumour . . . yet strangely disturbing at this moment.

"*Firing in ten seconds.*"

If it hadn't been for the war scare, this present trip would have been put off, but a moon base was too big a thing to let slip into the hands of a potential enemy. It was known that the other power was going ahead with rocket research . . .

"*Nine . . . eight . . . seven*"

So Geoff Peters and Larry Forman were going to be the first men to circle the moon, and return.

"*Six . . . five . . . four . . .*"

At least, he hoped they would return.

"Three . . . two . . . one . . ."

Margaret——

"Fire!"

Larry was pushed down into the resilient padding of his seat. He felt the padding spread under him. Noise thundered in his ears. There was a gentle swaying motion.

It was uncomfortable, but he did not lose consciousness. He stared through the porthole above his head. Where, before, the blue of a summer sky had shown, he now saw a darkness that was space and the glitter of stars. The moon edged into view, a crescent of light, pock-marked with craters.

Pressure eased and the noise of the rockets died to a whisper.

Geoff Peters broke the fastening on his safety-belt and stretched his legs. He was grinning all over his cheeky face.

"We made it! We——"

The change was as sudden as the flick of a switch. One

moment there were the moon and stars beyond the porthole; the next, abysmal darkness. Nothing.

NEITHER MAN SPOKE. FOR A moment like that there are no words—only a primeval fear welling up from the depths of the subconscious. They stared at the porthole, seeking one spark of light, and there was none.

Forman cursed, spun on his heels to look back. The rear porthole should have been filled with the immense bulk of Earth. And there was only blackness.

"No doubt there is some scientific explanation," Peters said, tight-lipped.

Forman wasn't thinking about scientific explanations. Earth had vanished and, with it, Margaret. He remembered the ships which had not returned and a cold chill racked his body.

Peters began moving about the cabin, reading instruments. The electric light remained steady; whatever it was that

had happened, it was out there . . .

"The ship's working fine," Peters reported. "But the instruments aren't registering at all."

They looked at each other, wondering, afraid. This wasn't how it should be. The scientists had explained it all to them; maths and laboratory research and the laws of probability made the flight a matter of routine—everything planned in advance and no chance of the unexpected. In theory.

In practice . . .

"It's dark out there," Geoff Peters said. "We've been cheated—no wonders of space to look at. Nothing. What the hell do you suppose happened?"

Forman didn't have any ideas on it. He flipped the switch of the radio transmitter and spoke into the microphone.

"Moonship calling base. Come in, Earth."

No answer. The silence

mounted and became unendurable.

"So there's just the two of us now," Peters said. "No Earth, no moon. Just this ship in the darkness. Hell, I wish you were blonde, seventeen, with curves where it matters most."

"Shut up!"

"Take it easy, Larry."

He gulped back the fear that rose in him and checked the radio circuits, made a routine inspection of the ship's instruments. Everything appeared to be in order.

Peters quizzed him. "Any ideas? After all, you're the scientist on this trip."

"Technician," Forman corrected. "I can handle the equipment we have aboard, because I've been trained for that job. I'm no scientist; what's happened out there is beyond my understanding."

He sat down, staring at the porthole and the darkness outside. "Can you turn the ship, Geoff?"

Peters—he was officially pilot—grunted.

"I could—but what do I aim for? We're in an automatic orbit; we'll circle the moon and arrive back in three days. Let's stick it out. After all, the universe can't have ceased to exist. Earth *must* still be there, even though we don't see it. Maybe light-waves obey different laws in space . . ."

"And maybe we've ceased to exist so far as Earth is concerned."

"Well, we'll know in three days . . . a game of chess would take our minds off this."

Forman brought out his pocket set. "I'm white," he said, and moved.

"Knight to Bishop three . . ."

TENSION!

Neither man had spoken for hours. They sat in their padded seats, each absorbed in his own thoughts, staring through the fore porthole. The chronometer ticked into a taut silence, the strained atmosphere of the cabin, measuring off the last minutes of their three days' ordeal.

Forman watched the darkness, a prayer on his lips. If Earth never showed, if Margaret . . .

He had switched on the cameras at the appropriate time and the film recorded the surface of the moon. If it existed. Perhaps the film remained blank. The secret was sealed in canisters and they'd never know unless they got back to Earth and a developing tank.

Three days of utter darkness, shut in with each other, isolated from the universe. Three days of chess, the tension growing, building up to become the enemy between them.

Peters said: "We should know any time now."

Forman did not answer. He fastened the straps hopefully, staring into the darkness, looking for the lights of Earth. There was sweat coursing down his face, making an irritation about the stubble on his jaw. His eyes were starting from his head, aching with the strain of watching.

The harsh electric light of the cabin was subtle torture after the black emptiness of space. Three days of it, the madness growing inside him and turning to hatred. It would be all right soon, he told himself. It would be all right once he saw Earth and knew he was going back to Margaret. Nothing else mattered.

He listened to the low hum of the atomic motor, the ticking of the chronometer, Peters' steady breathing, the beating of his own heart. They must be getting close. Suppose Earth was there, dead ahead, and they never saw it? The end would come quickly, with a crater their memorial . . .

Blood trickled down his chin where his teeth had clamped on the loose flesh of his lip. Peters began to curse, very softly.

Now, now, *now*, said Forman over and over inside his head, it must come *now*!

Suddenly, brilliantly, Earth showed in the porthole. Peters

gave a yell of triumph and the tension flashed to zero, discharging like a condenser. Forman's eyes watered . . . through the blur he saw blue-green and brown ochres, white clouds scudding over the land.

"We've done it—we're back!"

He was weak, limp as a wrung-out rag, trembling.

Peters said: "Strap down, Larry. I'm firing the retarding jets."

The invisible hand thrust him into the padding and a waterfall of sound drummed in his ears. The Earth turned and he began to recognise oceans and continents. Nearer rushed the ground, swooping to meet them. Over the Channel, Forman noticed a three-masted sailing ship. The south coast, Salisbury plain . . .

"Where the devil is the firing range?" Peters howled.

Forman wondered at the wild look of the countryside. Roads were few, houses scarce, people . . . what was that? A stage-coach? The houses looked old. No, that wasn't

the right word—they were an old style, but they looked—well—almost *new*.

"I don't know where we are," Peters said. "Must have missed a landmark somewhere, but it's too late to change direction. I'm setting her down."

"Just set her down," Forman said, "anywhere on Earth. This is home. A few hundred miles one way or the other, that's nothing."

Peters made a good landing. He cut the motor and there was silence. They looked at each other and grinned. It was over. They had conquered space and returned.

From the entrance hatch, they had a view of heather and wood, with a glimpse of distant hills and a plume of smoke rising to a clear sky. The land was oddly deserted.

"Well," said Geoff Peters, "looks like we'll have to go and find the reception committee."

Forman followed him down the ladderway and they both froze as a woman's scream

echoed on the still air. It sounded again, nearer, accompanied by shrill blasts of a hunting horn.

The girl came out of the wood, running with the speed of a hare on sure, bare feet. A brown dress flapped about her young body—for she could have been no more than eighteen—and her hair was black and wild.

She saw the spaceship and stopped dead in her tracks.

She was pretty in a rough, gypsy way, with a tanned skin. Her eyes were big and lighted with fear.

A dog bayed.

She came to life and plunged forward, towards the two men.

Peters said: "Reckon we've gate-crashed a film unit on location—but where are the cameras?"

The girl reached the ship and threw herself on her knees before them. "Save me," she gasped. "Save me from the tribunal."

She hugged the ground, looking up at them with

pleading in her eyes. Forman felt uncomfortable.

"Get up," he said. "No one is going to hurt you."

Men came tramping from the wood. Men in dark clothes, wearing frock coats and gaiters and tall, conical hats. Some carried pitchforks, one a fowling piece.

"Hold the witch, stranger," shouted their leader, a powerful man with a ruddy face. "Hold the witch and deliver her to us."

Peters and Forman looked blankly at each other, then at the girl, who cried: "By my Lady, I am no witch, I swear it!"

She rose to her feet and ducked behind Peters and Forman. The men formed a menacing half-circle, closing in. Their leader carried a Bible and a silver cross, which he lifted in the air.

Peters said, gruffly: "What in hell is this? You've got the poor kid scared out of her wits."

"It is the truth you speak," answered the man. "She is of

Hell and must burn at the stake. Gather brushwood, my friends."

His gaze fell on the spaceship and, for the first time, his voice faltered.

"What manner of thing is this?" Then, staring suspiciously: "Who are you, strangers? Explain your presence here."

Peters snapped: "What does it look like? It's a spaceship, of course, and we've just been round the moon. If you——"

The man stepped back, crossing himself. "Evil is upon us, my friends! The witch has sought refuge with others of her ilk. Fire, fire to cleanse our land—fire to destroy their bodies and release their tortured souls! Fire!"

Forman said, uneasily: "I don't like this."

Peters turned to speak to the girl, but she was no longer there. The last he saw of her was a slim figure racing across country . . .

"Back inside the ship, Larry," he shouted.

Forman started up the ladder with Peters close behind him. A gun exploded noisily and lead shot pinged against the metalwork of the ship. Something cut Forman's cheek and blood ran into his mouth. He climbed faster.

Peters slammed the door and locked it.

"Don't ask me what this is about," he said, "but we're safer in here whatever the explanation. Lot of madmen if you ask me."

Forman tried the radio. There was no sound from it, no sound at all. He stared through the porthole.

"They're piling brushwood against the base of the ship, Geoff!"

"The devil they are! Strap down, Larry—I'm taking her up."

Forman listened to the motor starting. It made a faint whine and, over it, came the crackle of flames. Smoke swirled up, obscuring the porthole.

Peters said, viciously: "Let's see how they like some of

their own medicine," and fired the rocket jets."

The ship rose. Earth fell away and a blue sky gave way to the black void of space. Stars glittered. The moon showed clear and beautiful for one long moment. Then it happened again——

There was darkness.

Peters said: "I'm going to turn the ship through one hundred and eighty degrees and set her down again. Hold tight."

Forman watched the gyroscope, for there was no other way of knowing when the ship reversed. It was dark out there . . .

Minutes passed before Peters fired the jets again. They waited in fear for Earth to show. Forman's lips were dry, his scalp prickly. It was the year nineteen hundred and seventy three, he reminded himself, and no one believed in witches.

Could space drive men mad, give them hallucinations? He fished in his pocket and brought out the special licence

he carried. Margaret's name consoled him.

"Earth ahead," Peters said quietly.

THIS TIME THERE WAS NO excitement in them. The second landing was anticlimax and they did not feel sure what to expect. The ground came up to meet them.

Through the porthole, Forman saw rolling hills, thick woods, a swath of green grass, and . . . he rubbed his eyes. What he saw could not possibly exist.

"Now I *know* I'm going crazy!"

Massive stone castles, three of them, set on adjacent hills, moated and draw-bridged with pennants flying. A double file of men in armour mounted on horses and carrying lances.

And spaceships . . .

Peters laughed hysterically.

"I could believe in one—or the other. But not both. Not both together. You see it, don't you, Larry? Don't tell me I'm the one that's insane."

Forman wetted his lips.

The spaceships—of varying designs—were grouped about the three castles. Some were tall and bullet-shaped, some spherical, others of dumb-bell form. One looked like a truncated cone. Some were painted, some silvered—a few appeared derelict, stained with rust where the protective coating had weathered away.

Weeds grew round them and flags fluttered from them.

"Larry! You *do* see it?"

Forman nodded.

Earth hurtled up at an alarming speed and Peters had to fire the retarding jets in a hurry. It was a bad landing and they were both shaken up.

"What now?" Peters asked.

"Do we go outside? If our reception is anything like last time, I vote for sitting tight."

"We've got to find out what's happened."

Forman opened the door and looked out. Horsemen came trotting up, and one armoured man dismounted and stepped forward. He had a flag in his hand which, after some difficulty, he succeeded

in attaching to the side of the ship.

"In the name of Sir Heyward," he said, "I claim this vessel." He stared up at Forman, and waved. "You, varlet, come hither!"

Peters grabbed his arm, murmuring: "Stay where you are, Larry—a gent over there is taking aim with a cross-bow."

Forman withdrew his head and called down: "Who are you? And where are we?"

The man in armour placed one foot on the bottom rung of the ladder. It looked as though he intended to come up, but the weight of iron he wore discouraged him.

"I represent Sir Heyward, master of yon castle flying the green dragon on a yellow ground, and you are in his domain. I order you to set foot on the ground."

"Not with that bowman drawing a bead on us," Peters murmured.

A trumpet sounded in the distance and the man below grew impatient. "Hurry,

hurry," he urged. "The knights of Sir Gentile approach."

When he saw that Forman made no move to descend the ladder, he signalled with his hand. The bowman let fly and an arrow came winging upwards. Peters dragged Forman back and locked the door.

From the porthole, they watched a line of knights charge down from the second castle, lances gleaming in the sun. Sir Heyward's men swung into battle formation. Gaudy banners waved in the breeze. A trumpet blared.

"Charge!"

"Well," said Geoff Peters, "this beats anything I ever saw on TV!"

There was no doubt about it. Both groups of knights were in earnest.

Behind the horsemen, came rows of semi-armoured men bearing maces, and behind them the bowmen shot their arrows. The hoofs of galloping horses set the ground echoing with thunder, raising dust even from the grassland.

Lances flashed in bright

sunlight. Swords swept through blazing arcs. The two armies locked in battle, grim and deadly, and men fell, groaning, never to rise . . .

Forman turned away, sickened.

"There's another lot coming from the third castle," Peters said. "And they've got huge wooden catapults with them!"

The battle raged with a fierceness that was incredible to men unused to physical warfare. Lances and swords were bloody, maces a flutter with human skin. Horses and men died without the slightest mercy being shown by either side.

Beyond the dust of battle, the army of the third group set up their catapults. The first rock landed some distance off and was scarcely noticed by those locked in the death-struggle. The second hurtled into the centre of the fighting men, crushing a score of them. The third came perilously near the spaceship.

"Time we were leaving,"

Peters said. "You know, Larry, I've a nasty suspicion it's us they're fighting over. Or rather, this ship. Have you noticed how the other spaceships are drawn up about the castles? The spoils of war . . ."

Forman remembered a story he had once read, in which sailing ships were lost in the Sargasso Sea. It came vividly to mind as he looked at the spaceships dotted about the countryside . . . the whole scene was quite incredible, like something out of a dream. He had to remind himself that he was aboard the *first* ship to leave Earth . . .

Another rock landed close by, and the ship rocked as the ground shook.

"Going up," Peters said, and fired the rockets.

Earth receded. They had one last glimpse of the battle, the three castles and the spaceships; then space, sprinkled with stars. Then darkness.

Forman thought of their diminishing food supplies, the nearly empty water tank.

And, though the ship was powered by atomic energy, their fuel would not last for ever. He could not understand what was happening.

Peters reversed the ship again; and again they waited for Earth to show. Forman tried not to hope for too much, to expect nothing—but it was hard when his thoughts turned to Margaret.

The darkness ended and Earth swam into view, a luxuriant green ball obscured by cloud. Peters swore because he could not see what sort of territory lay below. He fired the retarding jets and prayed.

The cloud cleared a little, but it was too late then. Dense jungle waited for them, swamp-ridden and menaced by the projecting limbs of immense trees. The ship crashed down through a tangle of foliage and creeper, swaying from side to side, and landed at an angle with the fork of a tree trunk supporting it. The portholes misted over and they could see nothing.

Forman opened the door.

It was like opening up a blast furnace. Heat rushed in and soaked him. The pungent smell of swamp water assailed his nostrils. It was green; starkly, vividly green. He saw leaves twelve feet across, vines as thick as his wrist. The atmosphere was oppressive.

"Pinch me and I'll wake up," Peters said.

"I wish that were true."

There was movement below. A voice, speaking English, but with an accent quite different from any Forman had heard before.

"What period are you?"

They stared down into the matted vegetation. A man struggled into view. He was small, slim, with a head incongruously large for his body, and dressed in a one-piece silver-grey suit which zipped up the front.

He repeated his question. Forman and Peters stared blankly at each other.

"I don't know what——"

Something came out of the jungle. It was scaly and moved fast, darting for the small

man; he brought up a weapon shaped like an electric torch. A beam flashed out, caught the intruder and devoured it. There was a smell of burnt flesh.

"I'm coming up," said the small man and mounted the ladder.

Peters looked doubtfully at Forman. "Think we should let him in? I can't say I like the look of that super blow-torch he's carrying."

"We need information. Besides, there are two of us."

The small man came through the door. He had a fringe of beard about his jaw and mud on his boots.

"Let me introduce myself," he began. "My name is Jon Pol, and I am a scientist from the twenty-second century."

PETERS TOOK A LONG BREATH.

"Now I've heard everything!"

"Not quite," said Jon Pol. "To begin with, during what time period did your journey commence?"

"Nineteen hundred and seventy three *anno domini*. It

was a beautiful summer day and ours was to be the first manned spaceship to circle the moon. Since when we've consorted with witches and knights who collect spaceships for a hobby."

Jon Pol made a clicking noise with his teeth.

"Interesting," he commented and took out a pad and scribbled something in it with a silver-tipped stylus. "You are now in Earth's jurassic period. I strongly advise you to go no further."

"We'll take your advice. Just tell us how to get back to the point we started from."

"Impossible," said Jon Pol.

Forman wiped sweat from his forehead and croaked: "What do you mean by that?"

"It is impossible to go back to the point you started from. Time travel works in one direction only——"

"Time travel!" Peters exploded. "We're supposed to be travelling through space."

Jon Pol gave an almost imperceptible shrug of his shoulders.

"Space travel is physically impossible," he declared. "That much I have succeeded in establishing. The planets and stars are forever beyond our reach. Space travel is really time travel. That is to say——"

Forman stared down at a special licence he held in his hands. He looked up at the small man from the twenty-second century. "You mean—we cannot get back to nine-hundred and seventy three? Not ever? Not anyhow?"

"Precisely."

Forman tore the licence across and threw the pieces from him. He slumped into his chair. Margaret——

"Don't take it hard," Peters murmured, and gave his attention to Jon Pol. "Give it to me slowly, I want to understand."

"I have not gone very far with my investigation, and so, inevitably, there will be gaps. I visualise our universe as a field of force, the space-time continuum, with matter as a weak point in that field.

Where a star system exists, there the force-field is warped. This warping of the continuum extends for something like five thousand miles beyond the surface of Earth—once past that point, your ship enters normal space-time. And there, travel through space becomes travel through time."

"Time travel into the past, for the future is not formed, being merely a statement of probability. Naturally, the event of your appearing in Earth's jurassic period will upset the probability of the world you left—and so any return is impossible."

"But the spaceships we saw," Peters protested. "Where did they come from?"

"From *a* future, not necessarily yours. Don't you see, at each point of civilisation where man achieves a rocket capable of leaving Earth, there he sends an interference into the past. Another probability is thus set up. You might say that a series of probable Earths extend to an infinite future."

Jon Pol paused, looked through the open door to the jungle.

"I have much to do before I complete my theory, but you will begin to see how interesting the situation becomes. Man is inescapably tied to this planet—but he can control his destiny by sending a ship into the past and so creating a new future."

Peters said: "And what about us?"

"You?" The man from the twenty-second century did not seem very interested. "This is the age of giant reptiles and the chances of your survival are small unless you have the weapons to deal with them. I suggest you find a cave to live in."

He went through the door and down the ladder and disappeared into the jungle. Peters closed the door. There was a long pause.

"Larry! Get hold of yourself, man—we're in a mess and we've got to decide what's best to do."

Forman stirred himself, but

his thoughts were with Margaret. If she existed. If another future had not replaced the one they had left . . .

"We've got to——"

Peters broke off. Outside, the jungle shook. A hideous screech was followed by a sound that suggested several trees had been torn apart. Something lumbered into view, huge, scaly, clawed . . .

"A tyrannosaurus!"

The giant reptile towered over the spaceship. Peters saw an ugly head and red, flaming eyes. It smashed its way towards them, preparing to strike . . .

Peters had no time to think of consequences. He fired the rockets.

Up into a bright blue sky—and darkness. Watch the gyroscope turn through one hundred and eighty degrees. And down again—down to an Earth waiting to receive the visitors from the future, waiting to give the wheel of chance one more turn. Down to an Earth still molten.

The ways of Science—3

by FRANK WILSON, B.Sc.

UNFORTUNATELY, we cannot here go very deeply into the methods by which causes are discovered; the argument is long and technical. We can give only the bare groundwork and leave those whose interests lie deeper to look up the subject in the many textbooks available. So we shall limit ourselves to the four principles of scientific method formalised by John Stuart Mill. These are still the mainstay of causational analysis, and serve quite well within very wide limits. But it must not be supposed that these are the only such principles, or that they are wholly and completely true.

Mill's first principle is known as the method of agreement; If two or more instances of the phenomenon under investigation have only one circumstance in common, the circumstance in which

alone all the instances agree is the probable cause (or effect) of the given phenomenon. He gives as an example the case of crystalline solids, and says that since the only common feature among crystals is a history of solidification from a liquid state, then this solidification is the probable cause of the crystalline structure.

The important point to note about this method (which is the one usually applied at the beginning of a scientific investigation) is that it gives us a *probable* cause, not a certain cause, for it is impossible to be sure that we have eliminated *all* the casual circumstances. In the case of the crystals, for example, the only common factor *we could find* was that of solidification. There may have been other factors which we were unable to discover because our instruments were

not delicate enough, or because we just didn't think of looking for it, or for many other reasons. Also, a given effect may be produced by any one of a number of causes—this is the doctrine known as the plurality of causes—and we may have found only one.

(Here we might interpolate the view that the necessity to call upon the doctrine of plurality causes is always due to an incomplete analysis of the phenomenon under investigation. Thus it might be said that there are many causes of death, when in fact, we really mean that "death" is applied to many different states of affairs which at a low level of analysis "look" the same.

Another point to notice about the method of agreement is that it is mainly an observational rather than experimental technique. So it is that at the beginning of a scientific investigation, the scientist makes observations, and only when he has examined these observations does he start to do experiments.

Mill's second principle is the method of difference. If

an instance in which the phenomenon under investigation occurs, and an instance in which it does *not* occur, have every circumstance in common save one, that one occurring only in the former; the circumstance in which alone the two instances differ is the effect, or the cause, or an indispensable part of the cause of the phenomenon.

This is rather a mouthful, but Mill's example makes it quite clear. He says that if a perfectly normal man is shot through the heart and dies, the wound is the only difference between the dead man and a perfectly normal man who is alive. Therefore the wound is the cause, or indispensable part of the cause of *that man's* death.

Mill did not realise the significance of (and did not use) the words we have italicised in the above paragraph, and so he made his method of difference too general. Strictly speaking it applies only to the case under consideration and other cases *that resemble it in all respects*. Thus, if a man is shot through the leg and dies we cannot, on the basis of the

previous argument, conclude that it is the wound that did it. We must first determine whether the leg wound is the only difference.

The method of difference may be used in an observational fashion, but it may also form the basis of experiment. Indeed, it is used to a tremendous extent in, say, chemistry. For example, we take a test-tube of silver nitrate solution and add a solution of common salt. There immediately forms a white precipitate, and we at once conclude that the formation of the precipitate is caused by the addition of the salt, since this is the only difference between the test-tube *now* and the test-tube before the experiment.

It is interesting to compare these two methods. They are both *eliminatory* methods—the method of agreement depends upon the assumption that whatever *can* be eliminated *is not* causally connected with the thing which interests us, and the method of difference depends upon the assumption that whatever *cannot* be eliminated *is* causally connected with that thing. Fur-

ther, the method of agreement suggests applications of the method of difference; if we find a lot of men lying about dead and all of them have bullet wounds in the heart, we might—if we were inhumanely scientific and the law allowed us to—try putting a bullet into the heart of a healthy man to see whether he died.

Notice, too, that the method of difference gives a very much higher degree of probability than the method of agreement. The probability is so high, in fact, that it is taken as certainty.

The particular caution that is needed with applications of difference is that extreme care must be taken to introduce only *one* difference at a time. In the chemical example, for instance, we could not deduce much if we added salt and pepper and vinegar and a whole lot of other things to the silver nitrate solution. Nor, in the case of the unfortunate men, would we get very far scientifically by shooting them in the heart, cutting their throats, breaking their

legs and pulling their teeth out.

Mill's third principle is the joint method of agreement and difference. Its statement is even longer than that of the last principle, but, as before, an example will make it clear; If two or more instances in which the phenomenon occurs have only one circumstance in common, while two or more instances (in the same department of knowledge), in which it does not occur, have nothing in common save the absence of that circumstance, the circumstance in which alone the two sets of instances differ is the effect, or the cause, or an indispensable part of the cause, of the phenomenon.

At first reading this may not make much sense, but examples of the method are plentiful. Thus, if every time you eat winkles you come out in a blue rash, and you never have such a rash whatever else you eat, you may consider it highly probable that the winkles are the cause of the rash. Or, if, whenever you plant some rose bushes in clay soil you get strong,

sturdy plants, and whenever you plant rose bushes in other types of soil you do not get such good plants, you would be entitled to assume that something in the clay soil is good for roses.

You cannot be certain, mind you, for this is merely an extension of the method of agreement, but the joint method certainly does raise the probability considerably over that obtained with the method of agreement alone.

The joint method may be partly observational and partly experimental, or it may be entirely observational. Most commonly it is the first of these two alternatives. Observations are made of the *presence* of a common factor in a phenomenon, and then experiments are made to show that the phenomenon does not occur in the *absence* of the common factor.

Mill's fourth principle is the method of residues; Subtract from any phenomenon such part as is known to be the effect of certain antecedents, and the residue of the phenomenon is the effect of the remaining antecedents.

Here we are presented with a complex phenomenon due to a complex of antecedents, but if we know that a part of the phenomenon is due to *certain* of the antecedents, we can say that the rest of the phenomenon is due to the rest of the antecedents. A very famous application of this method was in the discovery of Neptune. The complex phenomenon was the movements of Uranus; the complex of antecedents was the gravitational effects of all the surrounding planets. But it could be shown that some of Uranus' movements were caused by the gravitational fields of the then known planets. Thus it was considered that the remainder of Uranus' movements were caused by the remainder of the planets. But there were no other known planets, so astronomers started an intensive search—and found one.

The fifth and last principle that has come down to us from Mill is the method of concomitant variations: Whatever phenomenon varies in any manner whenever another phenomenon varies in

some particular manner, is either a cause or an effect of that phenomenon, or is connected with it through some fact of causation.

This method is of greatest use where we cannot completely eliminate a factor, but can alter it in amount, or where, in observing nature, a factor does not come and go but fluctuates. As an example we may take the case of the volume of a given mass of say, steel. We observe that this lump of steel changes its volume, increasing and decreasing. We notice, too, that the increases occur when the surroundings rise in temperature, and that the decreases occur when the temperature of the surroundings falls. Thus we conclude that rise of surrounding temperature is the cause of expansion and that a fall of temperature is the cause of contraction.

Although the method of concomitant variations can be used to discover the cause of an effect, its greatest use is in enabling us to establish the natural laws according to which the phenomena of nature vary. We may, for

example, use the method to determine the precise rate at which steel expands with given increases of temperature. Or we may determine the way in which weight varies with distance from massive bodies—and so arrive at the law of inverse squares.

When using the method in this manner we have to be very careful. It is very easy and tempting to assume that one's results apply within infinite limits, whereas one can be *sure* only about the limits within which one has made the actual determinations. For example, it is easy to measure the rate of expansion of water at varying temperatures, but if this is done within, say, 10°C. and 100°C., the law that result does not apply over a wider range. Water, as it is cooled, contracts like all other materials. But as you cool it below 4°C. it starts to expand again, *unlike* all other materials. There is no obvious reason why this should be so, and no one would have suspected it. It was found by experiment. And it illustrates well the danger of "going beyond the data".

In recent years, in biology, it has become increasingly evident that a principle that applies to one species may not, and often does not, apply to even closely related species. Thus, it was once thought that mammals converted the nitrogen of the protein in their diet into a compound called urea—because urea was found as an end-product in all the animals studied. This was a justified belief because observers had used man, monkey, dog, cat, horse, lion, tiger, etc. The evidence for the generalisation seemed overwhelming. But then, by chance, somebody studied a Dalmation dog and discovered that its end-product was not urea but uric acid. There just happens to be something funny about the Dalmatian that makes it different in this respect from all other dogs and all other mammals.

Thus we must be on our guard against claiming that our results apply to a wider range of phenonema than those actually investigated. This, of course, is a very common fault of reasoning in everyday life.

A poignant tale dealing with something that too many people laugh at.

JEAN—GENE—JEANNE

by CLIFFORD C. REED

HE had come a long way from the earth, and he had been a long time on the way. That did not worry him. He had not kept count of the days or the weeks. For him that was finished. It might well be that he was finished also. It probably was so. What he had done was so unutterably foolish that, back home, although he knew nothing of it, and would not have cared had he been told, the law had already declared him to be dead, and had wound up the infinitesimal balance of his estate.

No man, not a navigator, hurls himself, alone, out into space. Not voluntarily. No sane man. Therefore Jean Leslie was insane. An insane man, unversed in navigation, having driven his craft away from the earth on what, after all possible enquiry, was estimated as a barren course,

could not hope to plot a safe return.

The odds against such an improbability being manifestly astronomical, the law had conceded that any hope of Jean Leslie's return, even his survival, could be deemed negligible. Accordingly he was presumed dead, legally, and the story of his departure died also in the papers, and a fresh titillation was featured by editors insistent on headline news.

All this was no concern of his. He had settled his outstanding debts. He had no dependants whom he could accuse himself of having deserted. All he had deserted was his environment, and that only because his environment had treacherously deserted him. Or so he had at first thought.

The psychiatrist to whom he had gone had put things dif-

ferently. The medical men to whom he had been sent had put it in other ways. But, underneath their words, and reassurances, and encouragements, he had sensed, perhaps unjustly, a feeling of scientific curiosity, and he had shrunk from this.

If they, being what they were, had permitted him to feel that, what would the man in the street do to him? The newspapers, certainly, would never hesitate to crucify him.

It was inevitable that the idea of suicide should occur.

Live with himself, as he was, even where he was, that he could do. If this went no further. But the specialists were adamant that this which had begun in him would increase. It did not require much imagination to visualise his neighbours' faces when this condition became obvious. There was only one thing to do. He had to get away.

He began to gather his financial resources, and found them lean, as was to be expected at his age. Against that, he was healthy. For the moment, at any rate. He must not lose

this moment. He must act now. The problem lay in knowing how to act. An announcement set him thinking.

WAR DISPOSAL BOARD
OFFER

*Fifty superseded Mark 8
Propulsions.*

*Can be converted for
haulage.*

Was this the answer, space? Eventually he had come to believe that it was, and had gambled on this belief.

"Made a hole in your account," the bank manager had commented. "But it could be a good risk, Mr. Leslie. Those ships are worth more in scrap than you paid. It's our policy to encourage sound enterprise. Don't hesitate to see me if you find that things are a little tight."

"Thank you," he answered gratefully. The kindness of the manager warmed him, although it was misplaced. He was not going hauling, although he must act as though he were.

How much had he left? Enough, he found, for his purpose. Enough to convert

the greater part of the interior to carry fuel, and to load in that fuel.

"Enough for the round trip," the planetary inspector confirmed. He signed the certificate authorising Jean Leslie to ply freight in space. "You're wise, if your cargo isn't going to take up too much room. Fuel's expensive out." He passed the certificate over the desk. "What are you lining up for your first haul, Mr. Leslie?"

"Fashions, Inspector."

"Women's stuff, eh?" The official nodded. "Bulky, though, if you're going to stock right through, isn't it? They come all shapes and sizes."

Jean Leslie grinned back. "First run, samples. One size only. I'll be able to get a model wherever I touch. And book orders."

"You've got your head screwed on," the inspector conceded. He chuckled. "Sign on a woman in the crew. Then she can double as a mannequin." He put out his hand. "Best of luck, Mr. Leslie. Let us have your crew list when you're ready."

That was another hurdle surmounted. He had the rations shipped, all the necessary supplies for the round trip for a full crew.

There was only his stock left. Of necessity he had to conquer his initial embarrassment; to bargain over items he had never before handled. To assess their relative appeal to the feminine mind. Without their realising it, he made his selections according to his estimate of the seller's personal predilection.

He bought an outfit for every occasion that any normal woman would require. He was scraping the bottom when he had finished, but he was satisfied that he had covered everything.

He cleared with the Customs; was sealed in bond. Only the selection of the crew remained.

He had never intended that he should have a crew. He knew enough, had made sure that he knew enough, both to take off, and to land. In theory. He'd been out himself in the past, had sat with pilots who were also personal friends; had even, safely out,

and contrary to regulations, been allowed to handle the controls.

There was nothing in an owner being on his ship at odd hours. Particularly when the owner was pioneering a new venture.

By the time the local authorities realised what was intended he was off the Earth, outward bound. Patrols watching for him approaching the moon and the nearer planets did not get near him. He was sighted more than once, but on a course which would never bring him to any of these outposts. He answered no signals. His ship, moving on a novel line, edging away from any possible contact, fled away steadily down the heavens. It was not a menace to navigation. It was a ghost, dwindling and diminishing beyond the frontiers.

The authorities, he was sure, could be relied on not to pursue him. To them he would be committing suicide, choosing an expensive way of ending his life. He was mad. He was dead. He would soon be forgotten, except in so far as the ground regulations

would be tightened up by reason of what he had done.

He was satisfied that it should be so. And yet, not satisfied. If he could have felt that there was some person, no matter who, who would feel his absence, not sentimentally, grieving over his loss, but rather gratefully in that they had known him; then he could have no regret for having left. But he did not know of anyone whom he might expect to have such feelings. Which was, perhaps, as well. Had there been some such person, he might not have had the courage to have gone.

The ship went on. He read. He slept. He watched. He had no idea where he was in relation to the Earth. The Earth no longer existed. Time did not exist. Perhaps he did not exist. Probably, soon enough, that last would be the truth.

All that was, was the ship and himself and his stores. And his diet, the one the physicians had drawn up for him. For one reason and another, while he continued

to exist, he would adhere to this diet.

That was all there was. A ghost ship in empty space carrying a madman and his goods on a crazy quest.

What had that one saleswoman said? "If, where you are, you cannot find a woman who can wear this one size, then what will you do?" Will you have to go away from that station, not showing the women properly, or what will you do? Will you wear them yourself?"

It must be months that he had been living and sleeping in the clothes he wore when he had blasted off. They were looking now like something out of a rag bag. That was because he had not dared to risk bringing other clothes aboard. Such an action would have aroused suspicion.

But he was at a different stage now. He couldn't go on living in these things. Not if he was to keep his self respect. In the jungle it was considered wise to dress for dinner. He would, then, be wise also. Fortunately for him, there were no savages present to jeer.

Armed with his shipping lists he opened various containers. Not skirts, but slacks, and a blouse, and underwear, all feeling strangely soft and comfortable after the soiled garments he was delighted to remove.

Grinning wryly he moved across to inspect the result in the long mirror built in against the bulkhead.

He was not a large man, more wiry than muscular. About average, he always claimed.

But, in the mirror, he did not see a man making do with woman's clothes. He saw a woman. A tall woman, with wide shoulders and small waist, with bright, enquiring, troubled eyes, and nervous, fluttering hands; hands that flew up to cheeks that flamed although there was no other person present, and touched the hair that hung untidily about the ears and neck.

He drew back from the glass, and looked down at himself in distress. "I need a drink," he said.

Later he braved his reflection again. He was more prepared now for what he

saw, and, after the pause, more philosophical; could even be critical of his appearance.

"It's not having had a haircut that knocked me," he decided. He fingered the thick mop. "Well, if I've got to look like a woman, I'll be damned if I'll look like a slut. Where're those scissors?" He chuckled. Perhaps he was a little high. "First aid for the glamour girl."

With much manœuvring and twisting he clipped his locks into a reasonable degree of neatness. "Not what you'd call a creation," he apologised to his image, "but I'm doing my best for you, you must admit."

The girl in the glass smiled back. The smile was encouraging, but pale. "We'll fix that," he assured her.

He went back to his cargo. Presently he returned, and blushing (he felt as well as saw his face was red), he attacked the lips. He'd seen enough women doing the job. The result, he decided, wasn't so bad. Then he looked into the eyes.

"It's mad," Jean Leslie said,

and choked, and flung himself from the terrible glass.

He was trapped in a gin of his own contriving, confined in a coffin he had himself selected. Of his own free will he had cut himself off, and there was no going back.

He lay, clutching at his bunk, shaking with sobs he made no effort to control. Until he heard himself, and to his mind the sounds were those a female made, and he contrived to halt them, and thereafter lay in silence.

He was conscious of the feel of nylon and silk against his body; found himself liking this touch. Tentatively, with hesitating fingers, he lay stroking the blouse, drawing some increasing degree of comfort from it.

The next day was easier. Within a week he found he approached the mirror with expectant delight. The cargo was broached, piece by piece; each item taken out, inspected, exclaimed over, tried on. Then, a serviceable selection made for the immediate future, the balance was repacked.

"No need to worry about not being in fashion," he

argued. "I've got a couple of years ahead of me. Properly handled, they'll stay fresh to the end."

Very soon all feeling of strangeness at his own appearance went. After six months he found it hard to recollect what he looked like before he left Earth. Towards the end of the two years it was even harder.

"But—that doesn't mean that I've gone crazy," he argued.

He was sitting at the controls. Normally he did not bother. A major hazard could be sighted weeks ahead. As to anything else, he had settled that in his mind before he took off. To hell with it. The loneliness would be bad enough without getting jittery over the possibility of being holed by any chance, stray, malignant meteorite.

"Except, except that the loneliness doesn't bother me as much as it might do. Why?"

Was that because he did not feel that he had anything in common with his own kind? Except in his dreams, and these, too, were oriented differently now. Not completely,

but the balance had shifted. Further, he no longer shaved, no longer needed to shave. "That's the mental approach," he judged. "I've come to think like a woman, I suppose. Must have some somatic effect."

How great an effect he had not realised before. But now, as he looked idly at the star he was nearing, and which he would presently set the controls to avoid, he swallowed. The star was different.

It was not Earth, but it was not unlike Earth. A sudden, violent, intense desire to land swept over him, and his hands twitched on the instrument panel.

"But, if I do, then what? I couldn't live on it."

"Why not? You won't go on living in the ship when the supplies are gone."

"I won't want to."

"Won't want to live? You do want to live."

"Do I?" Yes! That was true. He did want to live, in spite of his expectance of death, in spite of everything.

Could this star support life? Space wouldn't, once his supplies were finished. And

he was, abruptly, tired of drawing a line through the void; a line that must ever grow fainter, until it failed altogether, and he was dead. Wasn't this risk of a quick end better?

Choosing, he swung into a closing orbit, excited, even, lacking cause, hopeful of the outcome of this impulse.

Days passed. He was committed. He'd never landed a ship, and appreciation of this fact bred a growing fear.

"But you can land the ship. You know what must be done."

"Vaguely. I'm not sure. I'm not confident. It's my first time."

"You do remember. You can do it. You've got to do it."

There was no denying that last point, and this calmed him somewhat, and nerved him, when the time came, into beginning the approach.

Step by step, nearer and nearer. Confidence, feeding avidly on survival, grew apace. He hadn't made any mistakes. He was going to do it. He *was* doing it.

When it was done he was calm. He sat before the sleeping instrument board,

high in the hull that towered over the scorched plot on which it had come to rest, and looked out over a landscape he had dared much to win.

Seen now, the outlook was not so much like Earth as to make him homesick, yet not so strange as to appal him. He saw movement. He snatched up the glasses, focused them in desperate haste on the object which had emerged from the tree like growths a mile away, and was moving towards the ship.

It was a man, a well built man, walking unhurriedly, strolling, a country gentleman enjoying a gentle constitutional in the peaceful countryside.

He dropped the glasses, shrinking back. After all he had done, after all he had endured, there were men here.

He fled away from the cabin to the chamber below, his living quarters during flight.

The mirror, facing him as he gained the floor, showed him an agitated girl, fists clenched, eyes staring in panic.

"What'll I do? I can't face them like this. God, what

made me land here? I've got to change. Before that man gets here."

A near-hysterical darted across to a locker, began hauling things out, scattering them. "Where'd I put my old things?"

"Take it quietly. There is no need, no reason to be afraid."

"Isn't there?"

"Why should there be? Have you committed any crime? No. Then what is there to fear? Nothing. You have made a good flight. Whatever you wear, does that change you? Dress how you will, then. You do not need to leave the ship, unless you wish."

"I do want to. I want to get out. To walk about. To have someone to talk to." The frenzied search had halted, the panting, distressed breathing eased. "I'll have to change though."

A reassuring look through the port showed that the large man was not apparently rushing to the landing place. There was time.

The dress—it had been a dress for most of the time—the dress came off, the underwear.

It was as difficult to adjust to the old suit as it had been to the original costume, more so, actually. But it was accomplished of necessity, and Jean Leslie looked at himself, considered his long mane, and shrugged. "I'll have to say I'm allergic to barbers. They can't prove anything from that."

He checked the living quarters. The female clothes were safely out of sight. There was no evidence of the double metamorphosis which had occurred. Except the lipstick. He scooped this up, thrust it into his pocket, and then went back to the control cabin.

The big man was standing on the verge of blackened soil, looking up. He saw Jean, and smiled, lifting a hand in salute, and the occupant of the cabin lifted a hand in dubious reply.

There were certain obvious tests to be made. Made, and the observations checked, the airlock relinquished its guardianship over the pilot's lungs, and Jean Leslie climbed down the ladder rungs, unsure and slowly, yet not without pleasure at the end of the

long solitude. Except for a little longer, until he had learned their language.

Smiling, the big man took both his hands. "Our *spoken* language, certainly. But we need not be limited to that, need we?"

"No."

This was terrible; a world where one's private thoughts were *not* private.

"Everyone here is like this?" He waited anxiously.

"Certainly. You will have no difficulty here." The big man did not seem to realise how disquieting his claim was. He threw out his arm. "You did not realise it at the time, but we have been in touch with you ever since your ship approached." He beamed. "It was not so difficult, was it? To land. But we thought your courage was admirable." He turned. "Shall we walk to the town? It is not far."

Indifferently Jean Leslie moved with him. This was worse than Earth could ever be.

"I see you did not change."

Jean halted. "What was that?"

"Your clothes. You were

not sure about whether you should change. As I told you, there was no need." His hand touched Jean's sleeve. "That is a very nice fabric."

There was something wrong. If they could read minds, how had this man slipped up?

"I *did* change," he insisted.

"Did you?" The big man looked surprised, then uncomfortable. "I must apologise. I did not realise that you did not want that known."

They stared at each other, examining each other doubtfully.

"Tell me," Jean queried with new hope, "if I were thinking something, something I wanted kept private, couldn't anyone get it?"

"No, my friend. You would not even have to guard it. If, subconsciously, you would prefer it to remain a secret, it would be secret." He put out his hand. "Will you overlook my fault?"

There was now no hesitation about the newcomer's response. "There is nothing to forgive." He laughed, shaking back his mane of hair. "Tell me everything,

please. And my name is Leslie, Jean Leslie."

The big man dropped one arm across his shoulders. "I will make a beginning, little Jean. My own name is Andros. Now we are friends, and I will tell you all the pleasant things so that you will be tempted to stay."

Temptation grew all that day, all the next, all the following week. It was not only the friendliness which they showed him, the peaceful atmosphere, the almost familiarity of landscape, and architecture, and customs.

Even on the first day, towards evening, at a meeting called by the authorities, he was given his opportunity. If he wished to leave, and he could take his own time about his decision, his stores would be replenished, and his fuel. Freely, for friendship's sake.

"But we hope that you will remain," the dignitary finished his address. "Not only because you prove what we have always believed—that we are not, necessarily, the only dwellers of this form in the universe—but because we

think that you could be content here."

He had flushed at this kindness, almost childishly naive; had replied, not committing himself, except for making very plain that he appreciated their approach.

Now, a week later, he waited for the big man, Andros. They would walk, the two friends, to the ship, and there he would make his decision. He would tell Andros whether he would stay, or whether he would take his chance in space.

He smiled grimly. Chance—there was no chance in it. If he went, if he gave this up, he would be committing suicide. He did not want to die. But that might be better than to go on like this. He would probably go, he thought unhappily.

Andros emerged from the sunny building, built like all their architecture against a background of decorative tree forms. He came over with long strides. "I told them that they must be quick," he said cheerfully. "I told them I must not keep you waiting."

"I hope they weren't angry."

"Angry? No. They agreed that I must not do that. They ran to arrange things more quickly. I ran too. But they said it would be better if I walked. It was less strain on the foundations." He boomed infectious laughter.

But Jean's amusement did not last. His pace slowed with his thoughts, and Andros, glancing sideways, was silent in sympathy, and even trod softly as they went through the woods.

They came out on to the turf. The ship stood a mile away, familiar, a reminder which might not be put aside. Jean, regarding it emptily, was aware that the towering hull aroused different emotions in his companion. The big man's face was eager, intent. It was only too obvious what was passing through his mind.

"Where would you go, Andros?"

"Out. As you did."

"But you would come back, wouldn't you?"

"Always. Certainly." He looked down. "Will *you* not go back? You are leaving us, are you not?"

"I must. I—do not wish to leave. But I must."

"The pioneer." Andros nodded. "The explorer." There was understanding in his face, and also sorrow.

"No! No! No!" The big man's arm was seized, and shaken. "You don't understand. You don't realise."

"I have been at fault." Andros was contrite. "I have upset you, little Jean. I am sorry."

"No," Jean denied. "You're not at fault. I am. I have not been open with you. I couldn't. But, now that I *am* going, I'll tell you. Personally. I'll show you when we go aboard."

"Wait." The big man held up his hand. "You do not have to tell me anything."

"I do, Andros." The small figure was erect, full of dignity. "It's right that you should know."

"Very well, then. Tell me. Then we shall find a way to make you happy once again."

"I only wish you could." Now that the decision was made, and made known, only this last thing remained. The sooner that was done the better. Jean flung forward over

the turf. Without looking back, with no pause for reconsideration, the slim figure of the traveller made for the ship. Thick hair streaming in the wind, he tore up the ladder to the port. More calmly, not falling behind, silent, the greater muscled Andros followed.

There were more ladders, other chambers, until they came to those in which the pilot had lived on his voyage from the Earth.

Andros, looking about, nodded. "It is very well designed, little Jean."

"So is a padded cell. But do you think the prisoner appreciates that?"

Infinitely patient, Andros leaned against the wall. "You are not mad."

"No," Jean agreed heavily. "I'm not mad." His smile was forced. "Would you like to see the cabin? I'll call you."

Andros was gone, without argument, without resentment, to wait until his friend should be ready to disclose his secret. That was Andros, quiet, gentle, unassuming, kind.

"He mustn't know what

I'm thinking. He mustn't know how I feel. It would make him miserable. And he mustn't be. I've done enough harm coming here. But it's only been to myself. I mustn't hurt him."

He was changing, not very quickly, however much he tried to hurry. "Underwear, stockings—most important—the dress. It must be a gay dress. And a ribbon for my hair, a bright, cheerful ribbon."

It was right to take a long time over dressing. One ought to look one's best when it was time to say "good-bye."

"The brightest lipstick you've got. And if it smudges the first time, and the second, you can try again. You want to look as nice as possible. You could have been a lovely girl, Jean. A girl any man would be proud to be in love with. Even a man like Andros.

"There, I'm all right now. I'm smiling. I don't look miserable. I'm not miserable. I'm being sensible, that's all. And honest. I've got to be honest with Andros.

"But, please, if he is ashamed, if he feels disgusted,

please, please—don't let me guess."

The girl backed away from the mirror, backed until she could retreat no further. Then she called.

Andros came. He came smoothly, not hurrying, not hanging back, solid, reassuring, an expectant smile lighting his grave face.

Seeing her as she now revealed herself he stopped. His smile changed. From a quiet, companionable indication of liking it blazed forth in exaltation at a dream come suddenly true.

Aghast at this development, so unexpected, so charged with bitterness, once the impossibility of its fruition was made known, she denied him frantically.

Obediently he halted. "I frightened you, little Jean. I am clumsy. I am a fool." His smile was quieter, more controlled. "But, you are so beautiful, the real you that you have been hiding all this time."

She felt herself flaming at this misunderstanding that was making her task more difficult every moment. No-

thing, now, could be more sure than that he must despise this fraud that had so cheated him. "You still don't understand, Andros."

"Tell me, then."

Her lips twisted. "You thought I was a man. You thought that all the time?"

"Of course. I am a fool, am I not. I wondered. Yes. How anyone so," he gestured, "so slight could also be so strong as to accomplish this journey. Now it is even more, how shall I say, more of a marvel."

There was intense pride and admiration for her. She writhed. She raged at him. "You thought I was a man. Now you believe I'm a woman. You're right about one thing, Andros. You are a fool. I'm not a man. I was a man. Once. Until I began to change. That's why I ran away. Because I wasn't anything any more. I'm just nothing."

Gone was the easy leave-taking, the gay, light-hearted farewell. All because the big, blundering idiot was—was a fool! Because he persisted in doing something that was going to hurt him more than he could ever deserve to be

hurt. Why, why, why, had she ever come here? Why hadn't she crashed the ship? Why didn't he go? Why didn't he get out and leave her? Why did he go on standing there, not looking worried, or angry, or even uncomfortable? Just kind, and understanding, and cheerful, as if there was nothing wrong at all.

He came closer. His big hands came up, and took her shoulders. "I am not the only fool, little Jean. I am not such a fool as to let you go and kill yourself without telling you that there is no need for that."

She shook her head. "You can't understand, Andros. You can't know how I feel. You want to be kind. You are kind. You're sweet."

"And you are a fool." He was openly teasing her. She stared. "Only someone who was afraid could be so foolish. When there is no need to be afraid."

There was that in his face which pulled her upright, made her clutch at his great arms. "You mean—? There's something that could be done, Andros? Something

the doctors here could do?"

He nodded. "Of what use is a person who is a prisoner in their own body? We have known this for many generations. Would you let them help you, little Jean?"

He laughed, tilting her head back, and under the infection she began to laugh also, not hysterically, but naturally, deep laughter welling up, joyful and free.

"We are both fools," Andros commented. "We shall be very happy together, I think. And now we will take the things you want and hurry to the hospital. But when we get there we will walk softly so that it does not fall down until after we are married."

He looked up innocently at the cabin roof. "Our doctors are very good. The hospital must not fall down for many years yet."

Holding his hands, letting the past with all its irrational shame and fear and uncertainty dissolve away in the peace of this wonderful present she made no effort to check her tears. Through their mists Andros smiled gently, as he would always smile for her.

All about the latest magic charms from the chemistry lab.

HALLUCINOGENS

by GEORGE C. DUNCAN

ONE is continually being surprised and impressed by the wealth of new things which are thrown upwards by research. On the other hand it is maintained that there is nothing new. It has all been said, done or discovered before.

Thus if one investigates the new drugs which come into the classification of hallucination-producing substances they may be purer in form, but the ancient Aztec civilisation knew of them before Cortez descended upon them from the Old World. The Aztecs obtained their supplies of their drug, mescaline, from the cactus *Anhalonium lewini* in the same way that certain Indian tribes on the U.S. and Mexican borders obtain supplies today.

This is not the only hallucinogen known and to complete the list we have the following: Mescaline obtained from the cactus *Anhalonium lewini*; Ibogaine obtained from the African Bean; Harmine from the Jungle Vine; Hashish from Indian hemp; An unknown substance which

occurs in the fungus *Amanita pantherina*; Lysergic acid from Rye Rust.

It may be as well if a few words of explanation are inserted about the last two of these.

Amanita pantherina is a fungus which grows in Siberia and probably for this reason as well as the method of extraction, Western scientists do not appear to have investigated the substance. The natives of the area chew the fungus and the active principle is excreted in the urine. It is the latter liquid which is used as a means of administration by drinking. It is reported that the activity remains after having been passed through several people.

Lysergic acid has been elaborated into a more complex but very active substance known as LSD-25. This is chemically lysergic acid diethylamide. Mescaline, like LSD-25, is synthesised in the laboratory and made available by the pharmaceutical laboratories in the form of tablets.

There is one other hallucino-

gen which should be mentioned and which occurs in the body. This is adrenochrome, a breakdown product of the naturally occurring adrenaline. It is produced by a faulty biochemistry, and is capable of producing hallucinations similar to those of the drugs mentioned above.

All these substances which produce these effects have been found to have the following arrangement in their structural chemical formulæ:



This grouping in the molecule is associated with inhibitors of amine oxidase. This enzyme is concerned with the proper functioning of the biochemistry of the brain.

The biochemistry of the brain and the action of the hallucinogens has not fully been worked out, but the inhibition of certain enzymes has shown that glucose is one item of particular significance in the process.

WONDEROUS VISIONS

To appreciate the significance of these drugs and their use by mankind it is necessary to go back into history. The subject is vast and for our

purpose it is sufficient to state that man has always sought for some panacea in his normal life, but in addition there is also a long history of drug-taking associated with religious ceremonies. It is in this respect that mescaline is taken in the present day by the Indians. Leaves of the cactus are dried and sliced and the resultant pieces of material are known as *peyotl* berries. These are chewed on special occasions and during religious ceremonies. There are differences of opinion regarding the effects of this practice. Christian missionaries maintain that the custom destroys will-power, but on the other hand an American philosopher who studied the question thoroughly has reported differently.

No doubt this matter will be resolved in due course, but meanwhile it is of interest to note that the drug mescaline and the native *peyotl* have not been controlled under poison regulations, nor narcotic control, either national or international.

Mescaline effects have been described in detail by Mr. Aldous Huxley in his book *The Doors of Perception*. The impressions of any subject

under the influence of the drug are of such a nature that they defy adequate description. Strangely enough all the clinical symptoms of the mental illness known as schizophrenia are duplicated by mescaline, but the hallucinations do not appear to be identical. Osmond and Smythies have published a comparative chart showing schizophrenic symptoms and the effects of mescaline. A close parallel can be seen.

Essentially the subject is aware of visual hallucination as the major part of the experience. Reactions vary according to personality, so that a standardised description cannot be given. Some people were aware, within a short period, of the appearance of grotesque figures, or in other cases of geometrical designs. These have been described as being highly coloured and may sometimes be seen as modifying the walls of the room so that they appear to be covered with coloured materials.

SPACE SENSE

Another reaction is the distortion of the sense of space. This may be simply the modification of the geomet-

rical lines of the walls and ceiling of the room so that they become eccentric. For example the corner of the room where walls and ceiling meet may appear to be extended outwards and away from the observer to form a cone. Similarly pieces of furniture take on an interest and a beauty which have never been seen previously. Mr. Huxley grows rhapsodic about the appearance of a chair in his room.

In a conversation with a volunteer at a controlled experiment the distortion of the concept of space was illustrated by the illusion of distance. He explained that he lay upon a bed and with delight stretched his arm across the ten feet distance to a table on the other side of the room to pick up a cup of tea which was made available. In fact the table was less than three feet away.

Then there is a loss of the sense of time continually mentioned by subjects. Thus a sound which may last only a few minutes may appear to continue for several hours. On the other hand the passage of several hours may appear to be compressed into the apparent space of a few minutes.

Materials may take on the texture of the finest cloths. Dirt or grubbiness disappear and new beauties are discovered in the shabbiest of clothes. It is not unusual for the person under the influence of mescaline to spend long periods in just looking. They explain that the visual experience is such that they feel they have never "seen" previously. Mr. Huxley tells how he spent a long period in the contemplation of his own trouser legs. Such an action to the normal mind is not possible for rational explanation and the discoveries which people have made under mescaline is sufficient to understand the significance of the Indian custom of taking the drug for religious ceremonies.

These heightened observations are also sometimes accompanied by the condition known as synaesthesia. Thus another patient says that the banging of a workman's hammer was accompanied by the appearance of coloured "splashes" which coincided with the noise. This example is probably the most vivid of those mentioned in the literature.

SARDONIC HUMOUR

Last of the major reactions

to mescaline is the modification of mood and humour. Sardonic ideas give rise to humour and the appearance of a large, modern automobile is sufficient to rouse intense laughter. The subject explains the matter in such a way that to him, the seeming self importance of the motor car, with its chromium, modernistic curves and so on appears ridiculous.

These reactions are interesting and do not appear on the whole to be unpleasant. The intensification of colour and the appearance of a few flowers for example gives exceptional interest to this one sense. The distortions of time and space no doubt also prove fascinating, which all combine to give the subject a new fascination in his existence.

But, and this must be underlined, the reactions are not identical and are controlled by a series of variables. Personality is a major factor, but the list includes cultural setting of the subject, age, dosage, the areas of the brain influenced by the drug and so on. It has been suggested that mescaline could replace the tobacco plant in the favours of this characteristic of the

human race to take drugs in some form. Advantages could be claimed for it, and if one compares the reactions of mescaline to those of alcohol, which releases all inhibitions so that the taker becomes a menace to himself and those around him, little more need be said.

PSYCHIATRIC DRUG

LSD-25 is an entirely different drug regarding reaction. It is probable that it will be only used in the realms of psychiatry and proves, according to recent reports, to have an interest for the treatment of mental conditions far beyond any other chemical.

It is general knowledge that repressed memories of certain incidents are capable of producing worries, eccentric behaviour, and unhappiness. It has been the custom to undergo treatment by psychoanalysis which may involve the patient and psychiatrist in lengthy sessions until the repressed factor is eventually brought from the subconscious mind into the forefront of the conscious mind.

Treatment with LSD-25 is such that the barriers between these long lost memories and their surfacing can be re-

moved. Some of the reports are such that it is clear that the patient has dipped, for a short time at least, into the snake-pit. Terror and fear are also usually experienced, and care has to be taken when giving this treatment that the patient is not driven over the edge into a true state of insanity.

On the other hand, for those of us who do not have to undergo the terrors of this mental regurgitation there are many surprising and interesting memories which are produced by more than one person. For those who have had the opportunity of reading the novel called *The Mutants*, the story you will remember is based upon the regurgitated thoughts of previous ancestors. Upon this hook the story is hung and spread; as a history of the telepaths who have been created by radio activity.

It is this type of occurrence which LSD-25 produces, though it must be remembered that one thing is fiction and the other is fact. Certain patients have remembered their own births and re-experienced those occurrences. Others report upon their return to a specific age. For

example, one woman found herself with the outlook and general perceptions of a child of eight years. The time was significant for her as she had certain experiences associated with that age. But the surprising factor was the apparent largeness of everything around her. Her clothes seemed to be too large and she had further illusions relating to the size of the hand which tended her. The doctor, she thought, was enormous.

A common memory was the vision of vast areas of desert which the patients usually identified with Egypt. The actual significance of this is not known in view of the sparseness of data. In the midst of this, however, the specific repressed memory which was causing them so much trouble was recovered.

INSIGHT

One common factor with LSD-25 and mescaline was the presence of insight. The person taking the drug knew that their experiences and hallucinations were directly associated with the chemical. When they appeared to stand in some aloof position in space and watched themselves eating a meal, detached from

themselves, they knew that their brain biochemistry was being influenced.

Research upon the hallucinogens is not so concerned with the fascinating results, but rather to find out more about the brain and its functioning. In this way some light will be cast upon specific mental conditions. Schizophrenia is a distressing state which over the years has not responded to any form of treatment. In view of the hallucinations associated with this condition, and then the similarity of the clinical picture to that of mescaline, it was not unreasonable to search for a substance which occurred in the body which might be the cause of schizophrenia.

Adrenaline occurs in the body naturally and is stimulated into production almost continuously and as a natural course of events. But the question remains regarding the disposal of this adrenaline after use. It is thought that, due to a basic fault in the biochemistry, the adrenaline is oxidised to adrenochrome.

To confirm the theory it has been shown that if a normal person receives an injection of adrenochrome they demonstrate many of the

features associated with the other hallucinogens. One important feature, however, is missing. This is the insight regarding the reasons for their state. They are incapable of associating the experience with the injection. This was the case with one psychiatrist who was actively concerned with the research and had taken an active part in the elaboration of the theory.

If research discovers more about this biochemistry and its relation to mental conditions it would appear that a new age of treatment can be anticipated in the mental field.

References:

- Aldous Huxley. *The Doors of Perception*. Chatto and Windus. 1954.
- Mayer-Gros, W. *Experimental Psychoses and other Mental Abnormalities*. *B.M.J.*, 1951, Aug., II, 317.
- Osmond, H., and Smythies, J. J. *of Mental Science*, 1952, 98, 309.
- Burn, J. *B.M.J.*, 1952, I, 748.
- Humphrey, Osmond and Smythies. *J. of Psychiatry*, Jan., 1954.
- Hey, P. J. *of Ph. and Pharmac.*, 1947, XX, 129.
- The Alkaloids*. Chemistry and Physiology. Vol. III. Academic Press, New York.
- Sandison, Spencer and Whitelaw. *J. of Mental Science*, April, 1954.
- Sandison. *J. of Mental Science*, April, 1954.

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When a little boy gets lost in a wood, there is
no telling what he might bring home

THE BLACKDOWN MIRACLE

by Peter J. Hazell

MICHAEL wriggled under the middle bar of the stile, paused to drag his near-useless left leg after him, and stood defiantly on the mould covered pathway. It stretched away from him like a dark brown ribbon, to disappear into what seemed an infinity of green shadows. Wide-eyed and a little hesitant, he viewed the depths ahead, thinking how very different and frightening the wood looked when one was actually in it. The wood had been his fairyland throughout all the time that Michael could remember of his four-and-a-half years. Viewed from the bedroom window, it appeared a wondrous place, all shiny-green or red-gold. Yet now that he was really here, the true vastness of it struck

home, awesome and foreboding. He gave a lingering glance backward at the cheerful sunlight beyond the stile, then set off along the path.

Rounding its first bend, he entered a small glade and looked around hopefully for signs of a gnome or pixie. There were none. Yet daddy said they lived here. When asked, he would laugh and say, "Yes, son. Even in this year of grace, 1965, there are pixies in Blackdown Wood—you'll see!"

That seemed a long time ago now, when daddy used to laugh. He didn't any more—not since he came home from that thing called "The Continent." Michael hated the Continent—it had changed his life by changing daddy, making him look old. Some-

times he muttered things in a low voice to Mummy, incomprehensible things he—Michael—wasn't supposed to hear, like epidemic spreading, madness and public morale. Mummy had changed too. She cried a lot lately and the other day, when daddy had tried to comfort her, she ran away from him, saying she had done an awful thing starting the baby now—when human life was finished. Michael didn't understand what it all meant, but he did realise that a new baby was coming. Pausing, he kicked a root several times with his left foot and wondered if the baby would have a "peggy" leg, too. As the dull ache high up in his groin eased, he stopped kicking the root and moved on steadily into the wood.

He passed through another glade and then entered a winding cavern, where trees interlocked and greenery pressed in upon the narrow path like a living wall. Occasionally he would pause and kick something as the pain in his leg increased ominously from its prolonged exercise.

It was when he swung a sharp, goaded kick at a young sapling that the frightening thing happened. As the impact shivered its twig-like branches, there came a nerve-jarring screech. Michael had one terrifying glimpse of a cream-coloured monster with glaring eyes and a cruel, curved beak. Then the thing hurtled out at him, stinging his face with a fury of beating wings. Michael ran screaming. The leg caught some protrusion, he fell, clawed himself upright and ran on.

The white owl settled high up in an adjoining tree, fluffed its feathers angrily, and went to sleep again.

Stabs of sheer agony knifing into his groin brought Michael to a halt. He sank down on the little mossy bank beside the path, buried his face in his arms and began to cry bitterly. After a while he quietened, the great wrenching sobs came less frequently, then stopped altogether.

He raised a tear-stained face and looked around. The white monster was nowhere in sight, yet something was mov-

ing near him with stealthy little noises.

A clump of tall grass just across the path rustled and waved slightly. Michael felt relieved—whatever it was couldn't be very big to hide in a clump of grass. He rose, crossed the path quietly and, kneeling, parted the long stems. Then he sat sharply back on his heels with eyes dilated and mouth forming an O of sheer disbelief.

GEOFFREY TOLLEN CLIMBED wearily out of his car and surveyed the I.E.R. building. He smiled a little cynically—"I.E.R." stood for International Emergency Research Bureau. He wondered why it was that mankind had to wait until the Apocalypse was upon him before he began to co-operate and launch an all-out war upon the oldest enemy—disease. There hadn't been the time and money to spare before, maybe, everyone was too busy playing with nuclear explosions and hyper-sonic killing rays. Much too damn busy to worry about the cure for a little boy's leg, crippled with paralysis. If he

could land a job that paid more money—a lot more—he might be able to do something about that leg of Mike's. Hell take any system where a man must stand by and watch his son dragging around a dead limb, while other kids ran past him! Just stand and watch and do nothing. Oh, to see Mike run!

Geoffrey Tollen slammed the car door and turned his attention to the I.E.R. building again. That brought him back to earth. Did crippled arms and legs matter now? It looked as if the human race was facing extinction in spite of the frantic mouthings of politicians and statesmen. He shrugged, fished out his press card and headed for the entrance.

The press conference was an unusual one—twenty-two hardened reporters sat fidgeting in the semi-darkness and watched a series of what was to them unrecognisable shapes appearing on a small cine-screen.

The lecturer's voice sharpened dramatically. His pointer indicated a fresh outline.

"This is it, gentlemen—the backbone of a *Rodentia Layomorpha*, otherwise known as the Wild Rabbit. Here could be the answer to our prayers. Let us pause at this point to review previous events relating to the discovery. When *Toxineuroglia*—the madness germ—first hit the world six months ago, doctors and scientists were helpless. You are all well aware of the terrible inroads it made during those first few months when it raged uncontrolled in Central Europe. Eventually, out of chaos, the International Emergency Research Organisation was formed. Then things began to get a little more organised in Europe; columns of refugees streaming from the plague spots and carrying the germ with them were halted. "Quarantine Villages" were set up and the first epidemic wave was stemmed—temporarily. It flared up somewhere else and was sealed off—only to appear again in yet another area. So the one-sided battle went on—is still going on. International Research discovered the drug Sulphacobrine, which

helped to some extent. At least it delayed the frightful symptoms of *Toxineuroglia* and enabled its victims to keep their sanity—for a time.

Then—by a most incredible fluke we found this, the spine serum, the one real cure—produced by a natural process in the spine of a wild rabbit. You will realise, gentlemen, just how tragically ironic such a discovery was.

"I will try to explain the origin of this serum as briefly as possible. Here is a picture of the spine of a rodent rabbit, infected by *Archaio-Pestes*, or as we here prefer it, "A.P." A.P. is a disease peculiar to rabbits and thousands of years old, so old in fact that through a process of natural selection the species became quite immune to it. At one time we believe A.P. attacked the creature's spinal column, causing inflammation, severe internal flooding, paralysis and, finally, death. Eventually, however, nature found its own answer. A new strain of rabbit appeared and, this time, upon contracting the disease, its spinal 'marrow' inflamed only slightly, then

commenced to manufacture an organic fluid which entered the blood stream and immediately neutralised the A.P. germ. The manufacturing process continued throughout the creature's life without noticeable ill-effects. In fact, ten years ago, it was calculated that ninety-two per cent of all rodent rabbits were self-immunised in this way.

"And here, gentlemen, are the facts of real concern. *If* we could take just ten cubic centimetres of this anti-A.P. blood, and extract its active constituent, we would have enough serum to save the lives of half a dozen infected people—for the rabbit's Archaio-Pestes and our new disease, Toxineuroglia, *are very nearly the same thing.*

"Tragically, we can't do it—because there are now no rodent rabbits, therefore no serum producers."

The shape on the screen dissolved, switches clicked, and the lecture room became a dazzling white cavern. A young man standing on the low dais before the screen blinked at his audience, paused a moment, then:

"Right, gentlemen. Now let's have your reactions."

The reactions came fast, several voices spoke at once. Finally, one with a high-pitched nasal tone dominated the room.

"Are we to gather then that salvation for the human race really depends on whether or not any surviving wild rabbits can be found?"

The lecturer nodded gravely. "That's about it, in a nutshell."

Another voice broke in. "But, doc, you people must have had a surviving rabbit to play with once, or you'd never have discovered the serum process and got these pictures we've just seen, in the first place."

"One of our research scientists was taking a short holiday in Canada, recovering from a nervous breakdown, when he came into possession of a live rabbit and tried to keep it alive, just to take his mind off things. No doubt he entertained the slender hope of owning a zoological rarity. The rabbit, of course, died—it had already contracted

myxomatosis—the man-spread anti-rabbit disease. However, it had remained alive just long enough for Doctor Weiss—that is his name—to stumble upon the blood serum theory.”

Someone offered the obvious question. “How about using tame rabbits?”

“They are a divergent species. They never contract the wild variety’s A.P. germ, therefore cannot become serum manufacturers.”

There was complete silence for a moment. Then Geoffrey Tollen heard his own voice, harshened with the bitterness he could not keep out of it.

“What you really mean is that ten years ago, man committed a sort of delayed action suicide! A small creature was so tactless as to annoy man by nibbling his crops, so the lords of creation whistle up their scientists and order its complete extermination. The present situation is almost a sort of poetic justice, isn’t it?”

A man sitting near muttered: “Dry up, Tollen!”

The lecturer cut in: “That’s

hardly fair or accurate. When myxomatosis was used against a rabbit pest in 1954, no-one had any intention of wiping out the species. It was just that the germ got out of control and ran wild.”

Geoffrey was on his feet now, his voice cracking with pent-up emotion.

“Well, we needn’t be so damned complacent. I’ve been to the plague spots. I’ve seen those ‘quarantine villages,’ as they call them. Villages! They are cities, cities of death and madness, whole valleys or hillsides fenced off with barbed wire. Square miles of shacks and tents and holes in the ground, and corpses nobody has time to bury.”

“*Sulphacabrine* is doing a good job. It is being airlifted to the plague spots from England, America and Canada. Fewer people die every day.”

The lecturer’s young-old face wore a tired smile as he spoke the heartening words. He went on:

“I know what those places are like—I’ve been there, too. I must impress upon you all,

however, that *sulphacabrine is not a cure*. It will stave off the madness and the deadly climax of toxineuroglia for months, even years in some cases. Yet it is not a cure because up till now the plague always wins in the end. But it does at least give us a breathing space."

Geoffrey sat down and wiped his perspiring face, feeling slightly ashamed of his outburst.

Someone asked: "What are the chances of finding any surviving wild rabbits?"

"Not very good, I'm afraid. Sponsored expeditions are being sent out in all countries to find and trap any which may exist, but without much success. The few which have been discovered were either of some divergent species and useless, or they contracted myxomatosis and died before we could get them near a laboratory."

There ensued another longer silence for several moments. Then came the question from which every mind had previously shied away.

"What are the chances of

the 'madness' epidemics spreading to this country?"

The scientist paused, raked his fingers through a stubble of dark hair.

"The Government is co-operating closely with us on that matter, and everything possible is being done to prevent such an occurrence. That is all I can say."

GEOFFREY NOSED THE CAR into a gap in the traffic stream and headed towards Fleet Street. Fifteen minutes later he was staring moodily at a typewriter keyboard and wondering just how much of the epidemic story would be allowed to appear in print. Those boys at the Public Information Department were getting jittery about everything concerned with it these days. His telephone buzzed, and the switch-girl's monotone voice informed him that Mrs. Tollen was calling.

When Mary came on the line, she sounded frightened. Her words made something cold begin to uncoil in his bowels.

"Geoff? Thank God! I've

been trying to get hold of you for so long! It's Mike—he's gone! I can't find him anywhere and it's been five hours now. Mrs. Garland at the farm says she saw him going towards the woods early this afternoon. Oh, darling, please come home—I'm scared. There's all those pools in Blackdown and the old slate quarry."

As Geoffrey punched the starter and waited for the turbo unit to register maximum, he wondered how much truth was in the popular notion that, when thrashed hard enough, a turbo car just blew up under you. He thought there was one way to find out.

It was in the small hours of the following morning that another car whined up the short drive-way to Geoffrey Tollen's house and as he, Geoffrey, flung wide the front door a man strode out of darkness into the pool of light.

"Hello, doctor. You weren't long—you must have made the trip nearly as fast as I did a while back."

The young scientist from

Emergency Research smiled his tired, lop-sided smile.

"When your phone call got me out of bed, I thought you were barmy or just hoaxing. And then when I realised you weren't either, I came as fast as the car would make it."

His face grew serious and he added in what was almost a whisper:

"Let me see your rabbit, Mr. Tollen! This suspense is awful!"

Geoffrey nodded and, turning, led him up a flight of stairs. Mary Tollen was waiting on the landing. She touched a finger to her lips and motioned them into a small, dimly-lit room. They formed a semi-circle about Michael's cot. Mary leaned over and gently lifted a small, furry bundle out of the sleeping child's arms. The doctor took it from her in silence and, as he did so, Geoffrey could have sworn he saw the man's hands tremble.

He carried it under the light; his thin fingers explored the body carefully and then, producing a tiny flashlight, he examined the creature's eyes, mouth and throat.

"Where did you find it, Mr. Tollen?" His voice sounded strained.

"I didn't. Mike here did, in Blackdown wood."

The scientist whistled a deep breath through his teeth and said: "This thing gets crazier as we go along. The American Research Department in Washington blew the roof-off six hours ago, proclaiming to the world that they had definitely saved a myxomatosis-infected rabbit with some new drugs they have evolved. That's incredible enough, but this is plain impossible. You see, I am prepared to swear that this one once *had* myxomatosis, too. If that is so, then there is only one conclusion to draw. It must have recovered naturally, *quite unaided*, an occurrence which is—well, scientifically impossible. Now—let's hear your story."

Geoffrey shook his head. "There isn't much to tell. My little boy apparently got an urge to explore the woods alone this afternoon. He got lost—it's a big wood. When Mary phoned me I raced home, collected some help,

and started a search. About midnight we found him, curled up under a tree, hugging this baby rabbit."

Geoffrey paused and added softly: "He wouldn't go to sleep again without it."

The doctor smoothed the rabbit's fur carressingly. Then, almost to himself: "Suppose it isn't fantastic after all? Suppose it's just—natural? The same thing happened once before."

He looked up at Geoffrey. "Nature was confronted with extermination of her rabbit species thousands of years ago when the old A.P. was deadly. She found a way round the problem then by evolving a rabbit capable of immunity. I think she has done it again!"

"You mean nature has produced a rabbit which can just take our myxomatosis in its stride?"

"That's what I think has happened. We'll soon know—blood tests should answer that. And tomorrow, I'll have Blackdown Wood turned inside out. It could be that this one has relatives there. Even if she hasn't—this is a young

doe, by the way—we are still on the winning side because I forgot to mention that the American survivor is a buck. If my theory is correct, Mr. Tollen, we cannot only begin breeding wild rabbits, but produce a new strain that is no longer vulnerable to that damned test tube germ.”

Mary smiled at the two men across the cot. “I wish you could discuss it downstairs, while I make some coffee. This conversation will wake Mike up.”

The small figure stirred

under the sheets, a hand groped sleepily across the pillow.

“He never saw a ‘real bunny’ before, except in picture books,” she added throatily.

The doctor was smiling his lop-sided smile again, yet it seemed warmer, less tired now. He lowered the rabbit gently down onto the pillow.

“I think humanity can wait a little longer for its salvation,” he said. “Until tomorrow, anyway.”

STAR HAVEN

is the title of next month's exciting lead story by E. C. Tubb. This tale of despotism on a far star will thrill you to the skies! Supporting short stories include another excellent piece by Dan Morgan and a time travel saga by Lionel Brooks. Non-fiction will be as good as ever.

AUTHENTIC—A MONTHLY MUST!

A simple account of the effect of space travel forces on the human body.

The Gravity of the Situation

by W. W. BYFORD, B.Sc.

GRAVITY is very much a matter of situation; so far, no man has been more than a few miles above the earth's shell, and he has been only very small distances below its surface. Nevertheless, within his limited experience, gravity has been found to vary within narrow limits.

The force of gravity at any point is what the physicist calls a resultant force. It is the force which results from the combined attractions of all the matter in the universe for a piece of matter at the spot under consideration. It varies in strength and direction. We have come a long way since the idea of a spherical world was hard to believe because it was obvious that people "on the bottom" would fall off. It is now common knowledge that the force of gravity acts towards the centre of the earth. That idea, however, needs modifying in terms of situation. The force of gravity varies slightly in direction according to one's position, even while still earth-

bound. A deflection may be caused by the nearness of a mountain. At a point on the coast with deep water to one side and heavy soils to the other, the swing of a pendulum can be used to detect a change in the force of gravity. At high altitudes the strength of the force of gravity is less than that at sea level. In deep mines it is greater than at sea level.

Measurable effects are also produced by the counter gravitational pull of the moon or the sun upon objects on Earth. The running tides that circle the Earth's oceans are due to the lessening of the force of gravity at points nearer to the moon. Evidence has been put forward to show that mountains rise and fall daily owing to the gravitational pull of the sun, and the changes in position of the mountain are relative to the sun as the Earth rotates.

But in addition to these small variations on Earth, man has experienced much greater changes in the force of

the gravity due to his movements in the various vehicles he has devised. Without thinking about the gravity of my situation, I stood at the open doorway of an aircraft a thousand feet above the summit of Fujiyama and looked down with the line of my body making an angle of twenty degrees with the true vertical. In that situation, the force of gravity acting upon my body was the resultant of the Earth's pull and the centrifugal force due to the fact that the aircraft was turning on a close arc. (I should add that when I got back to my seat and realised what I had been doing I felt decidedly queasy and maybe it was only because I was without an oxygen mask that I was so seemingly foolhardy. However, centrifugal force being what it is, I was in no real danger—unless the aircraft had made a sudden change of course.”)

Here is another little experiment you can do if you want to confirm the idea of centrifugal force opposing the Earth's gravity. Pierce the top edge of a cocoa tin with two holes on opposite sides and attach a loop of string about a foot long. Fill the tin with water and swing the whole thing round in circles ver-

tically, horizontally or in almost any direction. If you are swinging quickly enough, no water will be spilled. The centrifugal force will be sufficient to overcome the Earth's efforts to pull the water out of the tin, whether the tin be horizontal or inverted or in any other position.

Now quite a lot of people have objected to possibilities of space travel because of the range of gravities of the situations involved. Well, tell them that man has been travelling in space throughout his history. After all, isn't the Earth in it's yearly orbits round the sun busy space travelling? And doesn't it take man with it? It certainly does, and yet man is preserved because the Earth takes its own gravity with it—that is to say it maintains a form of attraction for a man on its surface, compared with which the attraction of the moon or the sun or any or all of the planets is negligibly small.

Can a spaceship take with it it's own force of gravity? Of course being composed of matter, it will attract other bodies and so it may be said to have its own gravitational field, but since it will be of so small a mass compared with the mass of the Earth, the

force of gravity which it will impose on a passenger is correspondingly small. And remember man is accustomed to living under a constant force of gravity on Earth. In fact his body has been evolved to live under that particular force and cannot be healthy for long where the force is very much greater or very much less.

The human beast has to get blood upwards to the head. Contraction of the left ventricle of the heart does that, being equipped with muscles adequate for the purpose. The valves and walls of the veins are designed to deal with the appropriate pressures in the legs and varicosity results when they fail to cope with the force of gravity. Put any man for a period of time where the force of gravity is double that on Earth, and even if nothing worse happened to him first, he would certainly develop varicose veins.

The skeleton is designed to support the weight of the various parts of the body. Put the body where the force of gravity is strong enough and the weight of the flesh becomes so great that every bone in the body is broken. There are plenty of situations in the universe where the force

of gravity is sufficient to produce these horrible effects. On or anywhere near any of the larger planets, Jupiter, Neptune or Saturn for example, the human body will be thus devastated unless something can be done to produce a counter force which will produce a resultant force of gravity comparable with that on Earth.

In many of the situations in space, of course the force of gravity will be negligibly small. This will be the case anywhere except near a body at least as big as one of the smaller planets. All Man's routine of living is based on the presence of a force of gravity. In its absence he could not pour out a cup of tea, and the lightest push on the floor of a spaceship would send him to the ceiling. A small boy once pointed out that under such circumstances we should not need to wear braces and no doubt many other advantages would arise in the absence of a force of gravity, but they may not outweigh the disadvantages. A dinner plate would rest in front of you without a table under it, but the slightest pressure with a knife and fork would send it to the floor, and even with a table under it, the

difficulty would be to touch it in such a way that it would not move sideways.

Now let us go back to the water in the cocoa tin. Let us suppose that the cocoa tin is a spaceship travelling towards a distant planet. If the ship is lying at right angles to the course on which it is travelling (and in the absence of air resistance there is no reason why it should not be) and is also swinging round and round in a small circle, so that its nose is directed towards the centre of the circle, then there will be centrifugal force throughout the vessel directed towards its tail. By controlling the speed of rotation and the radius of the circle, the equal equivalent of a force of gravity to that on Earth can be maintained throughout the ship.

There is another way in which gravitational effects may be produced by movement. When you travel in a lift such as an express elevator in a New York skyscraper which rapidly attains high velocity, the results can be most disconcerting. Do you remember your first downward trip in an underground railway lift? The odd feeling of the first few seconds while the lift was getting speed? Do

you remember feeling you had suddenly become much heavier as an upward lift began to move? Maybe you have become so used to these things that you no longer remember them or maybe you still feel them every time.

Anyway, the fact is that acceleration will produce in the body effects akin to those of the force of the gravity. For certain purposes the force of gravity on Earth can be given the value "G" which, strictly speaking, is the acceleration produced in a body falling freely. When an aircraft is catapulted from the deck of a carrier, it may increase its speed by eighty feet per second in the first second of its motion. A falling body would get a velocity of thirty-two feet per second at the end of its first second. Eighty is two and a half times thirty-two, and so we say the aircraft is launched at two and a half "G." In effect a passenger is pressed backwards against his seat with a force two and a half times as great as that of gravity on Earth.

A normally healthy person can stand up to two and a half G's for a short time. In power dives aircraft have subjected pilots to more than

two and a half G's and they have survived. On the other hand such dives have lasted for only very short periods because air resistance rapidly brings about an even velocity, and velocity by itself produces no complications in the body. "Black-out" is a frequent occurrence in high speed aircraft. High acceleration causes the skull to exert pressure on the brain, blood distribution is disturbed, and for one reason or another unconsciousness is produced. If the pilot is young and healthy, as soon as acceleration ceases he recovers awareness and his total period of blackout is so short that he is often unaware that it has happened. In some cases it was necessary to put a camera in the cockpit so modified that high acceleration would open the shutter and photograph the pilot slumped over to convince him that, like other men, he could stand just so many G's and no more.

Obviously we can at present do no more than face up to the difficulties that gravitational forces will make for the navigator in space. Apart from the gravitational forces of the large masses of matter in space, there will be the forces due to acceleration of

the ship itself. Centrifugal forces will also produce similar effects. It will be possible in many situations in space to make one of these offset another and it may be possible for man to reach all manner of situations which on first consideration may seem impossible, although he may have to keep moving.

Special clothing has been found helpful at high acceleration in aircraft and no doubt similar devices will be used in the true space suits. It has also been suggested that fields of force may yet be devised that will put counter gravitational forces available to enable a man to be at rest on Jupiter, but as yet no source is available.

The space-man will not be an optimist, rushing into uncharted perils ill-prepared. What I have written is an indication of his awareness of the dangers, coupled with suggestions as to how they may be met, and eventually man will travel secure in the kind of faith that every man has who rides in a bus, or a train, or a stratosphere aircraft—faith in the knowledge of trained personnel of physical forces and the mathematical ability of the vehicles' designers.

MARCH of SCIENCE

STRAY RADIATION

EVIDENCE that goes far towards confirming the sometimes startling science fiction prognostications of widespread radioactivity following nuclear explosions is presented by H. M. Clark¹ of the Rensselaer Polytechnic Institute at Troy, New York. It was shown by comparison of radiation counter readings that radioactivity produced in a test explosion in Nevada was carried by rain clouds and released in rain drops 2,300 miles away, covering the distance in thirty-six hours.

Scientists are thus becoming intensely aware of the dangers of such "wafted" radiation—not so much from the point of view of human health, for the degree of radioactivity is always only a small fraction of the safe dosage. But there is great danger that unsuspected stray radiation will affect the results of various tracer experiments many miles away from the centre of explosion. The level of radioactivity used in most tracer work is of the same order as that of stray radioactivity. Normally a scientist does not bother about whether it rains

or not while he is doing an experiment, but now, especially in America, he will always have to be sure that the rain which is falling outside his laboratory is not responsible for the readings he takes off his counters. It may well be that scientists as well as farmers and shipping will have a more than cursory interest in weather reports!

In a sense this is history repeating itself. When various electrical devices such as trains and trams were installed in southern England, many laboratories found that their instruments were affected. The old Greenwich Observatory was sorely troubled by this interference when the nearby railway line was electrified. Astronomers at the Observatory could tell whenever a train stopped and started at the nearest station! This was one of the reasons why this famous Observatory was removed to Herstmonceux in Sussex, and it may be that laboratories doing tracer work will have to shift their premises. The problem will not be so easily solved though, for it is not easy to move several thousand miles away

from the original site. Since a great deal of fundamental research is being done with tracer techniques there is a queer kind of feed-back damping effect on scientific progress; as knowledge of nuclear physics proceeds by explosion after explosion, so tracer work will be more and more hindered. The only really feasible way out is to build tracer laboratories with thick lead walls—but this costs a lot of money.

A PILE UP

Still on the subject of radioactivity—many readers of science fiction will be cognisant of the dangers that attend the running of atomic piles. A large number of stories has been published in which something goes wrong with the pile, and the suspense and tension of such stories must be familiar to all science fiction devotees. Something went wrong with a real-life pile a year or two ago and an account of the subsequent decontamination has recently been published².

The pile was the NXR at Chalk River in Canada. It was built in 1947 at a cost of five million dollars and operated on uranium and heavy water. For some years it led the

world in production of neutrons and aided in many valuable contributions to nuclear science. As Christmas 1952 approached someone made a mistake at Chalk River. The exact nature of the mistake has never been revealed, and the result of the mistake has always been delicately described as a "power surge." The recent account of decontamination—which took fourteen months to complete—mentions that about 10% of the uranium rods in the pile lost their aluminium sheathings, with consequent oxidation and melting of the uranium involved. It doesn't need much imagination to see what this might have led to had it not been discovered when it was.

The frighteningly large number of 10,000 curies of fission products went into the cooling water. More fission products found their way into all parts of the pile and associated apparatus. The general havoc that reined in the establishment can be gauged from the reported facts that the reactor itself was irreparable, the basement was flooded with highly radioactive water, every scrap of apparatus in the building was highly contaminated, and even the walls, floors

and ceilings became unhealthily radioactive.

Clearing up this mess was a long and arduous and highly dangerous job. During it, a great deal was learned about decontamination technique, so something good came out of this tremendously expensive mistake. But it is probably fairly safe to assume that somebody isn't working at Chalk River any more!

EPHEBIATRICS

A most interesting paper by Sir Heneage Ogilvie, Consulting Surgeon to Guy's Hospital, London, deals with the medical problems of the "men and women liable to be called up for National Service, that is between the ages of 18 and 25³." Since many of our readers must be in this age group, they may like to know about some of the ills they are prone to, as shown by this new speciality of ephebiatrics. (The "Ephebos" was an Athenian youth who did two years of military service at 18.)

This age group has been found to be the best time of life for eminence at boxing, hurdling, sprinting, jumping and piloting fighter aircraft. At the same time, people of this age are more liable to get fractures of the scaphoid and

dislocation of the navicular bones of the wrist as a result of falling on the hand. (Different injuries result from such a fall at other ages.) Dislocation of the shoulder, the elbow, the hip, the knee and the ankle are found to be more common in the early twenties than at any other period of life. Dislocation of the mid-tarsal joint in the foot is only seldom seen outside a military hospital, and results from the assault course practice of jumping from a height under heavy load onto one foot.

The so-called march fracture (a transverse crack involving the neck of the second or third metatarsal) is found in young men taken from sedentary jobs and made to go marching all day. There is no fall, no tripping; just the marching will do it.

Another remarkable characteristic of this age group is the formation of extra-skeletal bone. It has been found that the most striking examples of this (involving bone formation in the thigh muscles) occur in professional players of association football, *not* rugby football. Due to his desire to engage in violent sports and dangerous hobbies, the person of this age group is more likely to

come into hospital with "the stove-in chest of the driver and the stove-in face of the passenger." Also common to this age group are the "bumper" fracture of the motorcyclist's tibia and the pulverised right elbow of the sports driver.

This scientific paper is written with elegant style and delicate wit. We recommend it to all who are in, or are interested in, the ephemeriatric group.

SPACE SEAT?

Contrary to popular belief, the business man is seldom a rank materialist concerned only with day-to-day matters. Usually he is far-seeing—in his own interests, maybe, but future-minded nonetheless. And it is difficult to believe that the great aircraft companies of the world have not a fraction of an eye on the probable development of passenger spaceships. Most of them would laugh at the idea in public, of course, but in the quiet privacy of their drawing offices—well, who knows what glimmerings of ideas are hatched and stored away for possible future use? And who knows but that some of these ideas might find present-day application?

Whether this is the genesis of the recently marketed de Havilland Airliner Chair we do not know, but their account of it⁴ would not be out of place in a future catalogue of spaceship equipment. The new chair has all the comfort and amenities of the orthodox model—reclining back, ash tray, head pad, etc. But the feature that points like a signpost to the future is that it weighs only half as much as a normal chair. Readers of this magazine do not need to be told that weight must be as conspicuous by its absence as possible on spaceships. Here then, we may be seeing the prototype of the chair that will be fitted to the great space liners of the future.

REFERENCES

1. Clarke, H.M. *Science*, 1954, 119, 619.
2. Gilbert, F.W. *Chemical Engineering Progress*, May, 1954.
3. Ogilvie, Sir Heneage. *Lancet*, 1954, II, 395.
4. *de Havilland Gazette*, 1954, No. 82, 99.

THIS IS A REGULAR FEATURE appearing every month and giving you the latest information of what is going on in scientific laboratories and research organisations all over the world. *March Of Science* keeps you up-to-date!



FICTION

THE STARMEN, by Leigh Brackett, is the latest book received from Museum Press (26 Old Brompton Road, London, S.W.7). It costs 8/6. As might be expected from the American author, the story is space opera-cum-romance. Quite possibly it is also science fiction. The theme is that only one planet of some extra-systemic set-up, has people who can go to the stars — because they are mutants and able to withstand the high velocities. Conflict rages around the man who discovers a means of mutating in this fashion. He is finally packed off to oblivion so that no one shall share the mutants' abilities. It is quite an entertaining yarn, suitable for quick and unfastid-

ious reading. It has no depth, is deplorably inaccurate and only passably well-developed. Another 'Low' on Museum's list unfortunately.

One in THREE HUNDRED, by J. T. McIntosh, comes from Doubleday (575 Madison Avenue, New York 22, U.S.A.) at \$2.95. It is right back in the standard of McIntosh's first novel, *World Out of Mind*, and is very highly recommended. With the simple, straightforward, dimensional style of writing that makes science fiction really credible this book will go a long way towards changing the minds of people who still do not know that science fiction can deal with matters of wide and important interest. The story is woven round a Lieutenant in the space service who has to

choose ten people to go to Mars with him. Other Lieutenants are doing this all over the world. Those who are not chosen will stay behind; to die—for Earth is doomed. We have here a searching analysis into the reasons why people should be chosen to live while the rest die. We follow this small band on their trip to Mars in a rickety, slung-together lifeship, and we stay with them awhile and watch them settling in among the already-present Martian colony. These are real people who speak real dialogue, and who, in their natural reactions to the problems around them, show us that in McIntosh we have one of the best British science fiction authors—possibly *the* best. This is a book that *must* be read.

Oh that we could say the same about *SPACEFLIGHT—VENUS*, by Philip Wilding! This book, published by Hannel Locke and put out by Harraps (182 High Holborn, London, W.C.1.) costs 9/6, and is not worth it. The writing style and the paucity of the vocabulary indicate that it is a juvenile story, but

the ideas and themes with which the author none too manfully struggles, prove that this is meant for adults. It has everything, *including* the kitchen sink! The plot weaves drunkenly and wraith-like through a multitude of too-obvious explanations of futuristic things, concerned in an oddly detached kind of way with little bits of the lives of several people who are bound up with an attempt to reach Venus. To quote: "Venus had contacted several planets and moons nearer to her than the Earth." And again: "Earth hospitals and rehabilitation centres were among the finest in the world . . ." If you can make sense of this sort of thing, you may be able to read the book. But you won't like it.

You may remember that in issue No. 39 we reviewed a book called *David Starr: Space Ranger*. We now have, from Doubleday at \$2.50 a companion volume by the same author, Paul French—*LUCKY STARR AND THE OCEANS OF VENUS*. Though this book has not quite the thrill and authenticity of the previous

title, it still has competent plot and writing. As a frankly juvenile story it is a success; older readers may find its conflicts and characters a little too simple for their liking. This is really a spy story set on Venus, or rather, beneath the sea of Venus, where a gigantic city squats under a protective dome. Somebody is walking off with "top secret Venusian formulæ" and it is Lucky Starr's task to find out who. So the book is a whodunnit too! Certainly it is exciting to the young mind, and that, after all, is what it sets out to be.

Rather an unusual theme makes *SATELLITE E ONE* an unusual book. It is all about the planning, building and running of Earth's first artificial satellite. It is a pity that the American design of space station is again presented as a feasible theory, but apart from this the book is remarkably accurate. There are many intriguing passages concerning the main character's emotions and feelings in space and on the station. Written in slow, somewhat pedantic style, the book will not bring a

quickenings of the breath and a dilation of the nostrils. But it will prove of special interest nonetheless, for there are few books of this kind—*Prelude to Space* by Arthur C. Clarke springs to mind as the only other one worth reading. *Satellite E One* is written by Jeffery Lloyd Castle, and costs 10/6 from Eyre and Spottiswoode (15 Bedford Street, London W.C.2.)

NON-FICTION

The intriguing title: *DO COWS HAVE NEUROSES?* is applied to a splendid little 1/6 booklet published by the National Association for Mental Health (39 Queen Anne Street, London, W.1.) It was originally written by Mrs. June Bingham for American readers, and that may explain the refreshingly casual presentation in the slightly amended British edition. The booklet is intended to explain simply, clearly and light-heartedly the way in which reasonably normal people feel and behave—and to compare them with those who are mentally ill. It is hoped that the booklet will help to dispel some of the

ignorance surrounding ignorance of the mind, to convince normal people that they *are* normal, and to foster a modicum of sympathy for the afflicted. With its excellent text and appealing drawings, it seems to us to serve these purposes admirably. Highly recommended.

Professor and Mrs. Bullough have two children of seven and 10, and, like good parents, they take a deal of trouble over them—even to the extent of writing books for them. Now we have the published version of one of these books—*INTRODUCING ANIMALS—WITH-BACKBONES*, at 8/6. (Methuen, 36 Essex Street, London, W.C.2.) The male author is a professor of zoology, but this does not prevent his writing in a perfectly understandable manner that will appeal to adults as well as children. The book tells the fascinating story of animals from fishes to man, including many of nature's oddities. Each page has at least one brilliantly clear illustration. We can recommend this with happy confidence.

Those of us who have done

physics to intermediate (i.e. Advanced G.C.E.) level will remember how inadequately was presented the mathematical parts of the subject. Those who have yet to make this grade are in a much more fortunate position, for *INTRODUCTION TO THE MATHEMATICS OF PHYSICS* by J. H. Avery and M. Nelkon (Heinemann, 99 Great Russell Street, London, W.C.1.) at 9/6 goes step by step over the ground from the most simple to the most advanced topics of intermediate physics. With a veritable wealth of worked examples and exercises (with answers) taken from actual examination questions, this book should go a long long way to removing the mathematical fears of physics students. It should also give the mathematician a clue to the uses of his subject. We feel that the authors have done a magnificent service to the student generation and we have no hesitation whatever in thoroughly recommending their book to all those of our readers who, we know, are preparing for examinations physics at this level.

SCIENCE NEWS No. 33 comes at 2/- from Penguin Books (Harmondsworth, Middlesex) and as usual contains a series of interesting review articles. We have a most intriguing account of up-to-date notions and experiments on *Instinct and Learning* by S. A. Barnett; a brief but cogent review of *High-Energy Nuclear Disintegrations* by P. E. Hodgson; a "dimensional" piece on *Celtic Interlacing Patterns and Topology* by H. A. Thurston; an account of nature's forces in *Weather, Climate and River Erosion in the Ice Age* by G. H. Drury; a most fascinating description of *Recent Work on the Bacteriophage* by J. E. Hotchin; a piece specially applicable to our own readers, *New Ways of Taking Off and Landing* by J. M. Stephenson; and the usual round-up of recent developments in *Research Report* by editor A. W. Haslett. A very good buy for 2/-

In 1946 was published a very important book, but it was expensive and did not reach the general reader—who needed it most. Now Penguin

Books has brought it out as a Pelican at 2/6—cheap enough for anyone. The book is *SEX AND THE SOCIAL ORDER* by Georgene H. Seward. It is a masterly survey among animals and man of the part played in the organisation of societies by that topic of eternal interest, the differences between male and female. Thus "sex" is used here in its true traditional embrasive sense and is not limited merely to the phenomena of reproduction. Dr. Seward is a well-known psychologist of a great many years' experience, and she has brought to the compilation of this book a scholarship and erudition that conceals the hard work she must have put into it. Following the sixteen chapters in this 275-page book are 701 references to the literature; so that everything may be checked, and everything may be looked into further if so desired. We heartily recommend this inexpensive but valuable book to readers of all ages and sexes!

Few arts are as firmly based on scientific principles as photography, and in few arts

is it as easy to make a complete hash of things because of a misunderstanding or ignorance of these principles. Such ill-fortune is no longer excusable, for a cheap and efficient source of information is now available in **PRACTICAL PHOTOGRAPHY** by B. K. Johnson, published by Hutchinson (Stratford Place, London, W.1.) at 8/6. This splendid little book by the Reader in Technical Optics at the Imperial College of Science and Technology, very fully covers the entire theoretical ground of photography with a remarkably practical emphasis. Theory is not put forward merely as theory—the fault with other books of this type—but is expounded with a firm view to application by ordinary people with ordinary photographic apparatus.

The 144 pages of the book cover 14 sections (chapters), a bibliography and index. The index could, with advantage, be more detailed, and the text would be considerably enhanced by a few photographs in addition to the plentiful line drawings. Most

aspects of general photography are covered in the various sections. Special sections deal with microfilm processes, photomicrography, stereo-photography, and colour photography. This is a book which, in addition to being easily readable, is marked with the further distinction of being useful.

Zoo-going may not be as fashionable an occupation as theatre-going, but it has a very large number of adherents, and is becoming increasingly popular. The practice is also becoming rather more intelligent in that it is coming to be less and less a matter of merely staring at animals that one does not see in everyday life. People of perception are requiring to know more and more about the animals found in zoos—about their natural lives, the way they are captured and the ways in which they are reared in captivity.

ANIMALS MY ADVENTURE is just the book for such people. It is written by Lutz Heck, Director of the Berlin Zoo, translated from the German

by E. W. Dickes, and published by Methuen (36 Essex Street, London, W.C.2.) at 18/-. Dr. Heck tells in graphic, absorbing style how he tracked down and captured big game in Africa and Canada, and how he brought them back to Berlin and set them up in healthy, modern exhibition quarters. As you can imagine, this is a real life story that rivals fiction with its complement of thrills, struggles and accomplishments. Thirty-one beautiful photographs of these animals form a fitting accompaniment to the text.

Perhaps the most interesting and intriguing part of the book is the fourth section, wherein the author devotes twenty pages to an account of his experiments on controlled breeding with a view to the "resurrection of extinct species of animals." It must be clearly realised in dealing

with this part of the book, that if, for example, we could point to a living animal today which had all the characteristics of a dinosaur, it *would be* a dinosaur, irrespective of how it came into existence. Thus, when Dr. Heck, by careful long-term breeding programmes, starts off with an animal that is not much different from thousands of other present-day beasts, and ends up with a creature that bears every stamp of some remote ancestor, which is now extinct—*then* he has resurrected the species. In this sense he can be said to have resurrected the long-forgotten type of bull called Aurochsen, and is well on the way to producing a final generation of horse-like animals which will be exact replicas of the extinct Tarpan. Work such as this certainly stimulates the imagination and is therefore fitting reading for science fiction fans!

FANZINES

SATELLITE is a fairly well produced quarto fanzine which, unlike so many other British amateur productions, seems to be a one-man job. No bevy of editors and art editors and poetry editors here. The whole boiling is done by Don Allen of 3 Arkle Street, Gateshead 8, Co. Durham. It costs 1/- per copy or 3s. for four issues. Exchanges with other fanzines are welcomed. Issue No. 2 to hand contains a story, five articles (one by *Authentic* writer Bryan Berry) and five features. A fine balance is maintained between serious and humorous material. Though **SATELLITE** could hardly be described as an outstanding fanzine, it certainly takes an honourable place among the others—which is a great credit to the lone hand that runs it.

TRIODE is also fairly good to look at—as is to be expected from editors with as much experience of these things as Eric Bentcliffe, Terry Jeeves and Eric Jones, all of whom

were once tied up with *Space Times*. **TRIODE** is now their independent voice in fandom. And a fine voice it is, apart from, here and there, a certain amount of acrimony—which is also to be expected from these three misfits in fandom. The first number to hand has a wide range of contents, all of which is fully up to the general standard. Again, this fanzine is not to be shouted about from the rooftops, but is a competent job nonetheless.

It can be obtained at 9d. a copy or four copies for 3/- from Eric Jones, 44 Barbridge Road, Hesters Way, Cheltenham, Glos.

VARIOSO is an American fanzine which is impeccably and cleverly produced in several colours (of ink and paper). Understandably, it deals almost exclusively with the affairs of American fandom and unless you are interested in this there is not much point in taking the fanzine. Even so, reading **VARIOSO** would be a good way

to learn about the peculiarities of stateside fanaticism. It costs 10 cents a copy from John Magnus Junior, 9312 Second Avenue, Silver Spring, Md.

FISSION (see Projectiles) comes from the Surrey Circle of fans and its editor is Colin Parsons of 31 Benwood Court, Benhillwood Road, Sutton, Surrey. It costs 4/- for six issues or 9d. a copy. The 32-page issue number two is to hand. The editorial calls it the March issue, the cover says it is the February issue, its publishing date is the 10th of June and it reached us in late August. This, we think, is an indication of the sloppy way in which this fanzine is put together. True, the people who are running it have not yet reached the eminent height of maturity, but even young fans should be able to do a better job than this. Quite a quarter of the issue we have is unreadable due to careless duplication. The illustrations are poor in the extreme and the hand-titling makes one wince. Happily, the actual content of the thing is fairly

good—much better, indeed, than one would expect from a quick glance at the ink-smeared pages. If the Surrey Circle bestir themselves to make a neat job of the next issue, they may well produce a worthwhile fanzine.

ALPHA is Belgium's only fanzine, but that doesn't stop us calling it one of the best English-speaking efforts we have seen. It is edited by Dave Vendelmans, 130 Strydhof Avenue, Berchem, and he makes a really fine job of it. It comes out bi-monthly and costs 4/- a year. Subscriptions should be sent to Harry W. Roscoe, 1 Beeldekenstr., 124 Antwerp. The fifth issue contains reports on two conventions (the British in reality and the Belgian in imagination) which are extremely well done and are lacking the puerile attempts at humour which stigmatise some other fanzines. Although ALPHA has a strong continental slant, it would probably be of interest to most British fans. As we have said before, ALPHA is good; good enough to have a large circulation in Britain and America.

ORBIT, the fanzine of the Leeds Science Fiction Association, is almost as badly produced as *Fission*. Three of the pages in issue five are completely unreadable and the illustrations are deplorably lacking in talent. The contents of this issue, on the whole, do nothing to make us change our previous view that here is adolescent material presented as though it were adult. Almost without exception this is the kind of stuff that makes sense of the idea that science fiction is cheap and valueless. If you want it you can get it for 1/- per issue or 5/- for six from G. Gibson, Little London, Aberford, Near Leeds.

The second issue of FEMIZINE is to hand—and disappoints us. The first issue

held a promise which has not been realised here. We thought that the girls of fandom would be able to turn out something that would at least rank equal with some of their male counterparts. Instead, maybe because mistakenly chivalrous comments on the first issue and the venture as a whole have gone to their heads, the editresses have turned out a thing which is so obviously trying hard to be intelligently witty and just hasn't got what it takes. Also there is an emphasis on the smutty side of things that may well be unhealthy. No doubt these women will one day stop trying to act a part and will be themselves. When they do we'll tell you where to get this fanzine and how much it costs. Until then, chivalry is stone cold dead!

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Projectiles

OVERSEAS SECTION

UPGRADE STILL

Allow me to congratulate you on a very good issue, No. 47. W. B. Johnson's *Tryst*, as you said in your editorial, was strange, but very good indeed. I hope we'll hear more of him in the future. I'm glad to see the standard of your magazine is still on the upgrade. I've yet to see a cover to equal *Authentic's*. I'm very pleased to see the **AUTHENTIC BOOK OF SPACE**, by H.J.C., on sale. Keep up the good work.

Mike Penny,
22756894, Sigm. Penny,
C Troop 2825N, 2 Wireless Rgt.,
Royal Signals, M.E.L.F. 3.

Thank you, Mike, for your kind words. We hope you'll go on liking us.

SICK

In the first place, science fiction, no matter how you bake it, comes out of the oven as escapist reading. And escapist reading one does for sheer pleasure. And believe me, as an avid reader of the stuff for over twenty years, I've had my share. There are two really top drawer S.F. magazines over here. I've

watched them graduate from pure corn-fed space opera (some of it good, too!) to a spell of "gadget" stories (these I also like) to the present philosophical, psychological dreary little opuses. This fad I hope will soon pass. When I first subscribed to *Authentic* I stacked most of them on the shelf and planned to start on them when I got around to them. Well, the mood hit me a couple of weeks ago, and I pulled the wrapper off one and got the surprise of my life. Brother, they're good! Today, Issue 47 came in. I started at the beginning. *Stranger in Time* lasted four pages. Trite and trivial. As I always save the articles until last, *The Mutilants* was next. That nauseating little horror cost me my dinner. No rational thinking human can derive pleasure from reading a mind-twisting, stomach-turning collection of tripe like that. The rest of the stories were fine. Now pardon me while I go have a nice quiet little nervous breakdown.

J. G. David, Box 205,
Bishopville, S.C.

Sorry about your dinner, Mr. David. We thought American science fiction fans were tougher than that! In Britain we take this kind of thing in our stride. Maybe you've got Marilyn Monroe, but we've got that! Want to trade?

MORE PUNCH

I always read your editorial first and then compare my own criticisms of the stories with yours. For instance, in A.S.F. No. 47 I agree that *Stranger in Time* is rather fresh and exciting, but I think it has a "fresh out of the cradle" touch. *The Mutilants* is quite clever. I hope to see Peter Green more also, his story was very good for a beginner. Antony G. Williamson's *Day of All Else* was very crisp, a very good story indeed. *Tryst* has quite a poetic touch, especially for a most singular amoeba, *The Bridge*, this is certainly a good title; it literally makes you think of a bridge from the subconscious to the conscious mind, a very amusing story. On the whole, this edition is VERY GOOD, but do you think we could have a feature story with a little more punch in it.

4130207, L.A.C. Hollingworth, J., Billet D 11 B East, Tech. Wing, R.A.F., Habbaniya, B.F. in Iraq, M.E.A.F. 19.

Sure you can, James—and you do. But every now and then we like to give you something a little milder. Variety, you know.

SA SUBS

I trust you will find room in "Projectiles" to publish at least part of this letter, and so correct a certain amount of misrepresentation contained in the letters from "E.K.B." and "Fred van A." in No. 44 of *Authentic*. The information contained therein is not entirely correct. Science-fiction is NOT banned in South Africa on moral grounds—frankly I don't see how it could be! As a fan of long standing, I have done some investigation into the matter myself, and could quote reams on the subject. When you're a fan who lives in S.A., you

HAVE to know what is banned and what is not, and what can be done and what can't, or else—you don't get any science-fiction. But it is not necessary to go into detail. Suffice to say that the "ban" is based on import and currency difficulties, and has been in existence since 1949, and all pulps were included in a long list of restricted articles. S.F. was not specifically mentioned in the original list, and as a result, it began to appear in fair quantity in the shops for a time. When the powers-that-be found the ban was being circumvented, they then extended it to include s.f. specifically, and just for the fun of it, included film magazines as well.

If I may quote from a local newspaper commenting on the ban: "The latest extension of the ban to include science fiction and screen magazines does not mean that their importation will be stopped entirely. The regulations will only result in the quantity imported being severely restricted . . . The restrictions on importing publications of this type had nothing to do with immorality; they were based entirely on the saving of foreign currency." Right now fans are forming a club in Johannesburg, the possibilities of space travel are discussed regularly in Sunday newspapers, the S.A. Interplanetary Society is receiving plenty of favourable publicity, and there are even a few flying saucer clubs! The radio features talks on space travel, and s.f. films are well attended and arouse much comment. Interest in s.f. continues to grow. The ban merely means that you cannot walk into a shop and buy an s.f. magazine, but as this has been the rule rather than the exception for some years now, it is not likely to prove much of a

novelty or a deterrent to the s.f. fan, but merely provides a certain challenge to his ingenuity! Right now I read every issue of every s.f. magazine being published, not only in England, but in the States also, and hope to continue doing so for a long time to come. Perhaps you could explain the position to the two gentlemen concerned, and point out that they can still subscribe to *Authentic*. I hate to think of anyone being deprived of s.f. against their wishes!

Pearle Appleford,
6 Anglo-African House,
Smith Street, Durban, Natal,
South Africa.

Thanks for looking into the position and making it clearer, Pearle. Now we'll get some more S.A. subbers! Let us know how your Jo'burg Club gets along, will you?

SF AND CARS

Well, there's no doubt about it, you certainly publish the best British magazine there is, although that hasn't always been so. I like your latest series of covers very much, although one of them made me feel a bit sorry for the Mars pioneer who was standing in the way of a bit of rocket blast. As to the stories you have been publishing lately—no comment. On the whole there's no need to comment. They're pretty good. As far as I know I am the only s.f. fan in Collie at the moment—my one and only comrade in the game having foresaken the place for Perth. I am eighteen years of age and I should like to correspond with others around my age over there, who are interested in Science Fiction, the insides of cars and such.

Ian Macmillan,
111 Princep Crescent, Collie,
W. Australia.

Glad you like us, Ian. Keep on doing that. And we trust you'll get some motor-minded pen-pals out of this. Write again some time.

HOME SECTION

SURREY CLUB

You are receiving this because we think you may be interested in joining our club—"The Surrey Circle." At present we consist of eight or nine members who meet occasionally at each other's houses. We have no dues or fees as these meetings are very informal, being not much more than friendly chats about science fiction and kindred subjects. However, if we receive the support we need we hope to expand and improve. Two of our members, Geoff Wingrove and Colin Parsons, are co-editors of an amateur magazine entitled *FISSION*. Another member runs a non-profit making library of science fiction books and magazines. The library is in the hands of John B. Hall to whom you should write for further information. There are over 2,000 magazines, etc. in the library, and you may borrow the stock on the "Pay as you like" basis. If you are interested in joining the S.C., please write to John Hall of 68 Leopold Road, Wimbledon, S.W.19.

We reviewed FISSON under Fan-zines on Page 136. It's not as good as it could be and probably will be, but we hope the Club thrives.

SOURD

The stories in issue 48 were well up to standard, but not remarkable. Articles are keeping up the good work, though I'm not keen on the new series on fan groups. I've got a little soured on fandom, I'm afraid. That seems about all I've got to say this month; must be getting short

winded for once in my life. Oh, just remembered—Projectiles is slipping; no letter from me in this month! Calamity! You can tell fame (?) has gone to my head . . . wait till I get a story published!

Paul L. Sowerby,
21 Lansdowne Road,
West Didsbury, Manchester 20.

Nice to hear from you again, Paul. Here's another letter to go to your head. The fan group thing is out—not enough response. What sowed you, friend?

TOPS

I must congratulate you on *Authentic*, as, in my opinion, it is easily the "tops" in the U.K. and again in my opinion, is a better monthly buy than the American S.F. Magazine *Galaxy*. I find your short stories really excellent, and have drawn up a list of the best. I find your covers extremely good. I am looking forward to the day when *Authentic* will come out as a large mag so that it can be bound. Peter Dent, 18 Lynwood Avenue, Egham, Surrey.

Thank you for the good work, Peter. Your list is most useful. We only wish more readers would take the trouble to do that. Might improve our magazine no end.

FOURTH

In my five years of reading science fiction, I have bought only one copy of *Authentic*. This has a place in my collection of over 100 s.f. books and magazines only because I cannot get rid of it. The other day my sister, in a misguided moment, wasted a precious 1s. 6d. on *Authentic* No. 41, the January issue, and I can truthfully say that as a collection of sheer, unadul-

terated rubbish it is unsurpassed. If you claim *Authentic* to be Britain's best, surely you should print some Rayer and Tubb, Russel and Temple, McIntosh, etc., or cannot you pay high enough rates? Personally, I rate *Authentic* the fourth best British mag. A. W. Rees, 6 Highland View, Twynyrodyn, Merthyr Tydfil, South Wales.

That copy you can't get rid of—tried burning it? We've never claimed to be Britain's best, but we have published Tubb and Temple. Read more than two copies before you stick your long neck out, feller!

WHETTING

I am a regular reader of your journal and I find it by far the best of its kind published in this country, and definitely better than the general run of science fiction magazines on both sides of the Atlantic. May I suggest that the proportion of non-fiction is about right—enough to whet the appetite to investigate the local library, but sufficiently small to make the book easily readable.

I am interested in getting in touch with other fans, and I wondered if you might be able to put me in touch with a fan club in this area (West Herts.) if such an organisation exists.

P. D. Walker,
54 Deaconsfield Road
Hemel Hempstead, Herts.

We do not know of any fan club in that area, Mr. Walker. Why don't you start one? No doubt other of our readers who live near you would also like to get together. We hope they will write to you about it. Keep us informed, please, of any developments.

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G.A.S., Ossett, Yorks.

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Mrs. C.A.H., Coventry

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Fifty cigarettes a day for over twenty years is pretty good going and nobody would have me believe that I could ever give it up. Your APAL arrived four and a half weeks ago and I am delighted to say that I have not smoked since.

F.F., Hertford.

Dear Sirs,

I bought an APAL from you nearly eighteen months ago, and it did for me all that you said it would. I have not smoked for seventeen months, and have no desire at all to do so.

G.H., Marham, Norfolk

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